

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 b1
Edition : 04.11.88
Replaces : 7.1.88
Test oil : ISO-4113

Combination no. : 0 401 846 865

Injection pump
Pump designation : PE6P120A32ORS3202
EP type number : 0 411 826 769
Governor
Governor design. : RQV300..102SPA657-23
Governor no. : 0 421 813 669

Customer-spec. information
Customer : VOLVO

Engine : TD122A 35

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)

Rack travel in mm : 9.00...12.00

A01

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.20...12.30

Del. quantity cm³/ : 21.3...21.5

100 s : (21.0...21.8)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.8...5.0

Del. quantity cm³/ : 2.1...2.6

100 s : (1.8...2.8)

Spread cm³ : 0.5

100 s : (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.50...1.90

2nd speed rpm : 500

travel mm : 4.20...4.80

3rd speed rpm : 800

travel mm : 6.30...6.70

4th speed rpm : 1080

travel mm : 8.30...8.50

5th speed rpm : 1150

travel mm : 9.50...9.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1080

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del. quantity : 213.0...215.0

1000 : (210.0...218.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 58...66

Testing:
1st rack travel in: 11.20
Speed rpm : 1080...1090
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16

Testing:
Speed rpm : 100
Minimum rack travel: 6.40
Speed rpm : 300
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION
Speed rpm : 300...390

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.20...12.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.20...11.40
2nd pressure hPa : 480
Rack travel in m: 11.90...12.00

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del. quantity cm³/ : 193.0...195.0
1000 s: (190.0...198.0)

BREAKAWAY

A02

1st version
1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1080...1090

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 240.0...280.0
1000 s: (236.0...284.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.80...5.00
Del. quantity cm³/ : 21.0...26.0
1000 s: (18.5...28.5)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 w
Edition : 24.06.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 846 869

Injection pump
Pump designation : PE6P120A32ORS3118
EP type number : 0 411 826 726
Governor
Governor design. : RQV250...1100PA649-1
Governor no. : 0 421 813 675

Customer-spec. information

Customer : VOLVO

Engine : THD 102 KD

1st version kW : 250.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
 : (2.55...2.75)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.50...12.60

Del. quantity cm³/ : 22.2...22.4

100 s: (21.9...22.7)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 4.3...4.5

Del. quantity cm³/ : 2.7...3.3

100 s: (2.4...3.6)

Spread cm³ : 0.5

100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.10...1.30

2nd speed rpm : 500

travel mm : 4.10...4.90

3rd speed rpm : 700

travel mm : 6.30...6.70

4th speed rpm : 950

travel mm : 6.30...6.70

5th speed rpm : 1100

travel mm : 7.00...7.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1175

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del. quantity : 222.0...224.0
1000 : (219.0...227.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 60...68

Testing:

1st rack travel in: 11.50
Speed rpm : 1130...1140
2nd rack travel in: 4.00
Speed rpm : 1210...1240
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 6...14

Testing:

Speed rpm : 100
Minimum rack travel: 5.90
Speed rpm : 250
Rack travel in mm : 4.30...4.50

CONSTANT REGULATION

Speed rpm : 250...420

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 12.50...12.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.10...8.30
2nd pressure hPa : 700
Rack travel in m: 12.30...12.40
3rd pressure hPa : 120
Rack travel in m: 8.80...9.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del. quantity cm³/ : 131.0...133.0
1000 s: (128.0...136.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1130...1140

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 240.0...280.0
1000 s: (235.0...285.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.30...4.50
Del. quantity cm³/ : 27.0...33.0
1000 s: (24.0...36.0)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

APPLICATION
Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 u
 Edition : 01.07.88
 Replaces : 12.11.87
 Test oil : ISO-4113

Combination no. : 0 401 846 872

Injection pump
 Pump designation : PE6P120A32OLS3815-12
 EP type number : 0 411 826 770
 Governor
 Governor design. : RQV300..1050PA880
 Governor no. : 0 421 813 671

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 441 A

1st version kW : 191.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.10...13.30

Del. quantity cm³/ : 19.0...19.2

100 s: (18.7...19.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.4...5.6

Del. quantity cm³/ : 1.4...2.2

100 s: (1.1...2.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.40

2nd speed rpm : 600

travel mm : 4.90...5.10

3rd speed rpm : 800

travel mm : 5.80...6.20

4th speed rpm : 1080

travel mm : 7.70...8.10

5th speed rpm : 1130

travel mm : 8.50...9.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h : 700
Del. quantity : 190.0...192.0
1000 : (187.0...195.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:
1st rack travel in: 11.60
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever
position degrees: 14...22

Testing:
Speed rpm : 100
Minimum rack travel: 6.90
Speed rpm : 300
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 390...430

TORQUE CONTROL

Dimension a mm : 1.30
2nd speed rpm : 1050
Rack travel in m: 12.30...12.50
3rd speed rpm : 700
Rack travel in m: 13.50...13.70

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 13.10...13.30

Measurement

Speed 1/min : 600

1st pressure hPa : 350
Rack travel in m: 11.10...11.30
2nd pressure hPa : 550
Rack travel in m: 12.70...12.90
3rd pressure hPa : 780
Rack travel in m: 13.20...13.30

4th pressure hPa : 1100
Rack travel in m: 13.45...13.55
5th pressure hPa : -
Rack travel in m: 10.40...10.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100
Speed rpm : 1050
Del. quantity cm³/ : 184.0...187.0
1000 s: (181.0...190.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1100
Speed rpm : 700
Del. quantity cm³/ : 204.0...208.0
1000 s: (201.0...211.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 129.0...131.0
1000 s: (126.0...134.0)
Spread cm³ : 8.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 190.0...210.0
1000 s: (186.0...214.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 13,8 c1
Edition : 16.06.88
Replaces : 26.2.88
Test oil : ISO-4113

Combination no. : 0 401 846 879

Injection pump
Pump designation : PE6P120A72ORS3192
EP type number : 0 411 826 761
Governor
Governor design. : RGV300...900PAB57-1
Governor no. : 0 421 813 683

Customer-spec. information
Customer : IVECO-UNIC

Engine : 8210.42.101

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3,40...3,50
: (3,35...3,55)
Rack travel in mm : 9,00...12,00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 13.20...13.30

Del. quantity cm³/ : 23.9...24.1

100 s: (23.6...24.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.9...5.1

Del. quantity cm³/ : 1.8...2.4

100 s: (1.5...2.7)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 0.70...0.90

2nd speed rpm : 550
travel mm : 4.00...4.60

3rd speed rpm : 800
travel mm : 6.60...6.90

4th speed rpm : 900
travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 950

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 900

Del. quantity : 239.0...241.0

1000 : (236.0...244.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 57...65

Testing:
1st rack travel in: 12.20
Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 1060...1090
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 4...12

Testing:
Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 300
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION
Speed rpm : 370...490

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.20...13.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in mm: 9.00...9.20
2nd pressure hPa : 520
Rack travel in mm: 12.20...12.30
3rd pressure hPa : 330
Rack travel in mm: 9.80...10.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 500
Del. quantity cm³/ : 233.0...239.0
1000 s: (230.0...242.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 109.0...111.0
1000 s: (106.0...114.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.20
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 235.0...265.0
1000 s: (231.0...269.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.90...5.10
Del. quantity cm³/ : 18.0...24.0
1000 s: (15.0...27.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 s 9
Edition : 24.06.88
Replaces : 22.4.88
Test oil : ISO-4113

Combination no. : 0 401 846 880

Injection pump
Pump designation : PE6P110A320LS3835-1
EP type number : 0 411 816 755
Governor
Governor design. : RQ300/1050PA187-19
Governor no. : 0 421 801 428

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM441

1st version kW : 160.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 13.00...13.10

Del. quantity cm³/ : 12.6...12.8

100 s: (12.2...13.0)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 8.3...8.6

Del. quantity cm³/ : 1.5...2.1

100 s: (1.2...2.3)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 13.80...14.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del. quantity : 126.0...128.0

1000 : (122.5...130.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 14.1

Testing:

1st rack travel in: 12.00

Speed rpm : 1095...1110

2nd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.00...2.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.0

Testing:
Speed rpm : 200
Minimum rack trave: 8.70
Speed rpm : 300
Rack travel in mm : 6.80...7.20
Rack travel in mm : 2.00
Speed rpm : 400...440

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 1050
Del.quantity cm3/ : 138.0...142.0
1000 s: (135.0...145.0)
Spread cm3 : 7.00
1000 s: (10.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.00
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:
:

APPLICATION
Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0q13
Edition : 07.10.88
Replaces : 29.4.88
Test oil : ISO-4113

Combination no. : 0 401 846 883

Injection pump
Pump designation : PE6P110A32ORS3108-1
EP type number : 0 411 816 757
Governor
Governor design. : RQV250...1100PA649
Governor no. : 0 421 813 346

Customer-spec. information
Customer : VOLVO

Engine : THD 102 KB

1st version kW : 212.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.5...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.90...14.00

Del. quantity cm³/ : 18.3...18.5

100 s: (18.0...18.8)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.6...5.8

Del. quantity cm³/ : 3.0...3.4

100 s: (2.7...3.6)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.10...1.30

2nd speed rpm : 500

travel mm : 4.10...4.90

3rd speed rpm : 700

travel mm : 6.30...6.70

4th speed rpm : 950

travel mm : 6.30...6.70

5th speed rpm : 1100

travel mm : 7.00...7.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1175

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del. quantity : 183.0...185.0

1000 : (180.0...188.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 60...68

Testing:

1st rack travel in: 12.90
Speed rpm : 1130...1140
2nd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 7...15

Testing:

Speed rpm : 100
Minimum rack travel: 7.20
Speed rpm : 250
Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

Speed rpm : 250...425

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.90...14.00

Measurement

Speed 1/min : 500
1st pressure hPa : -
Rack travel in mm: 10.20...10.40
2nd pressure hPa : 240
Rack travel in mm: 10.40...10.50
3rd pressure hPa : 800
Rack travel in mm: 13.30...13.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del. quantity cm³/ : 111.5...114.5
1000 s: (109.0...117.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.90
Speed rpm : 1130...1140

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 160.0...190.0
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.60...5.80
Del. quantity cm³/ : 30.0...34.0
1000 s: (27.5...36.5)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SSC 10,5 e
Edition : 05.08.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 846 884

Injection pump
Pump designation : PE6P130A32OLS3210
EP type number : 0 411 836 713
Governor
Governor design. : RGV400...750PA607
Governor no. : 0 421 813 313

Customer-spec. information
Customer : SSCM

Engine : UD 25.L6

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

A13

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.10...13.20

Del. quantity cm³/ : 38.8...39.1

100 s : (38.4...39.4)

Spread cm³ : 0.6

100 s : (1.0)

2nd speed rpm : 400.0
Rack travel in mm : 5.6...5.8
Del. quantity cm³/ : 2.7...3.3
100 s : (2.3...3.7)
Spread cm³ : 1.0
100 s : (1.4)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400
travel mm : 0.50...0.90
2nd speed rpm : 500
travel mm : 1.90...2.10
3rd speed rpm : 600
travel mm : 1.90...2.10
4th speed rpm : 750
travel mm : 4.30...5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Del. quantity : 388.0...391.0
1000 : (384.5...394.5)
Spread cm³ : 6.00
1000 : (10.00)

RATED SPEED

1st version

Testing:
1st rack travel in: 12.10
Speed rpm : 750...755

2nd rack travel in: 4.00
Speed rpm : 775...790
4th rack travel in: 950
Speed rpm : 0.00...1.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.7

Testing:
Speed rpm : 100
Minimum rack travel: 7.20
Speed rpm : 400
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00
Speed rpm : 650...750

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.10
Speed rpm : 750...755

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del. quantity cm³/ : 27.0...33.0
1000 s: (23.0...37.0)
Spread cm³ : 10.00
1000 s: (14.00)

Remarks:

:

APPLICATION
Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : STE 10,0 f
Edition : 19.05.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 846 885
Injection pump
Pump designation : PE6P110A72ORS3204
EP type number : 0 411 816 754
Governor
Governor design. : RQ300/1100PA412-3
Governor no. : 0 421 801 436

Customer-spec. information
Customer : STEYR

Engine : WD615.63

1st version kW : 204.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet presc., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.60...12.70

Del. quantity cm³/ : 16.2...16.4

100 s: (15.9...16.7)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 4.4...4.6

Del. quantity cm³/ : 2.0...2.5

100 s: (1.7...2.7)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del. quantity : 162.0...164.0

1000 : (159.0...167.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.0

Testing:

1st rack travel in: 11.60

Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed rpm : 1240...1270

4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.5

Testing:
Speed rpm : 100
Minimum rack travel: 6.00
Speed rpm : 300
Rack travel in mm : 4.40...4.60
Rack travel in mm : 2.00
Speed rpm : 360...400

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.60...12.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in mm: 9.60...9.80
2nd pressure hPa : 600
Rack travel in mm: 11.90...12.00
3rd pressure hPa : 340
Rack travel in mm: 10.20...10.40

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm³/ : 178.0...182.0
1000 s: (175.0...185.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 125.0...128.0
1000 s: (122.5...130.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.60
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 240.0...270.0
1000 s: (236.0...274.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.40...4.60
Del.quantity cm³/ : 20.0...25.0
1000 s: (17.5...27.5)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : HZU 11,9 a
Edition : 23.09.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 846 886
Injection pump
Pump designation : PE6P120A32ORS3213
EP type number : 0 411 826 779
Governor
Governor design. : RQV250...1000PA891
Governor no. : 0 421 813 704

Customer-spec. information
Customer : HAEP

Engine : X6130 Z1

1st version kW : 206.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 443 022

Opening
pressure, bar : 172...175

Test lines : 1 680 750 060

Outside diameter
x Wall thickness
x Length mm : 8.00x2.00x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.70...11.80

Del. quantity cm³/ : 22.3...22.7

100 s : (22.0...23.0)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.6...6.8

Del. quantity cm³/ : 2.5...3.1

100 s : (2.2...3.4)

Spread cm³ : 0.6

100 s : (0.9)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.20...1.40

2nd speed rpm : 500
travel mm : 3.40...3.80

3rd speed rpm : 750
travel mm : 5.50...5.90

4th speed rpm : 1000
travel mm : 7.90...8.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1025

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 700

Del. quantity : 223.0...227.0

1000 : (220.0...230.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 61...69

Testing:

1st rack travel in: 10.70

Speed rpm : 1040...1050

2nd rack travel in: 4.00

Speed rpm : 1115...1145

4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 6...14

Testing:

Speed rpm : 100

Minimum rack travel: 8.20

Speed rpm : 250

Rack travel in mm : 6.60...6.80

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 700

Rack travel mm : 11.70...11.80

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.40...9.50

2nd pressure hPa : 400

Rack travel in m: 11.10...11.20

3rd pressure hPa : 300

Rack travel in m: 9.90...10.10

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500

Del. quantity cm³/ : 123.0...127.0

1000 s: (120.0...130.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70

Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 s12
Edition : 19.05.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 846 887
Injection pump
Pump designation : PE6P110A32OLS3835-1
EP type number : 0 411 816 755
Governor
Governor design. : RQ300/950PA187-22
Governor no. : 0 421 801 440

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM441

1st version kW : 150.0
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 12.50...12.60

Del. quantity cm³/ : 12.8...13.0

100 s: (12.5...13.2)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 8.8...9.0

Del. quantity cm³/ : 1.5...2.1

100 s: (1.2...2.3)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 13.60...14.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 950

Del. quantity : 128.0...130.0

1000 : (125.5...132.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 14.0

Testing:

1st rack travel in: 11.50

Speed rpm : 995...1010

2nd rack travel in: 4.00
Speed rpm : 1040...1070
4th rack travel in: 1300
Speed rpm : 0.00...2.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.9

Testing:

Speed rpm : 200
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 6.80...7.00
Rack travel in mm : 2.00
Speed rpm : 370...410

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
2nd speed rpm : 600
3rd speed rpm : 900

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del. quantity cm³/ : 123.0...127.0
1000 s: (120.0...130.0)
Spread cm³ : 6.00
1000 s: (9.)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 995...1010

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 s13
Edition : 04.11.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 846 888

Injection pump
Pump designation : PE6P110A320LS3835-1
EP type number : 0 411 816 755
Governor
Governor design. : RQV300..950PA884-3
Governor no. : 0 421 813 706

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM441

1st version kW : 150.0
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 12.50...12.60

Del. quantity cm³/ : 12.8...13.0

100 s: (12.5...13.2)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 8.3...8.6

Del. quantity cm³/ : 1.5...2.1

100 s: (1.2...2.3)

Spread cm³ : 0.4

100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.10...1.30

2nd speed rpm : 800

travel mm : 6.30...6.60

3rd speed rpm : 1000

travel mm : 8.30...8.70

4th speed rpm : 1060

travel mm : 9.20...9.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1000

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 950

Del. quantity : 128.0...130.0

1000 : (125.5...132.5)

Spread cm³ : 4.00
1000 : (7.50)

Remarks: :

RATED SPEED

1st version
Control lever
position degrees: 50...58

Testing:

1st rack travel in: 11.50
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1060...1090
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 18...26

Testing:

Speed rpm : 200
Minimum rack travel: 10.00
Speed rpm : 300
Rack travel in mm : 6.80...7.00

CONSTANT REGULATION

Speed rpm : 300...450

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del. quantity cm³/ : 119.0...123.0
1000 s: (116.0...126.0)
Spread cm³ : 6.00
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 v5
Edition : 19.08.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 846 890
Injection pump
Pump designation : PE6P110A32ORS3080-3
EP type number : 0 411 816 758
Governor
Governor design. : RQV250....950PA657-26
Governor no. : 0 421 813 709

Customer-spec. information
Customer : VOLVO

Engine : TD102FH

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.60...12.70

Del. quantity cm³/ : 17.9...18.1

100 s: (17.6...18.4)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 3.8...4.0

Del. quantity cm³/ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.40

2nd speed rpm : 350
travel mm : 2.20...2.80

3rd speed rpm : 750
travel mm : 6.30...6.70

4th speed rpm : 985
travel mm : 8.20...8.40

5th speed rpm : 1060
travel mm : 9.10...9.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 985

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del. quantity : 179.0...181.0

1000 : (176.0...184.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:
1st rack travel in: 11.60
Speed rpm : 980...990
2nd rack travel in: 4.00
Speed rpm : 1040...1070
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 4...12

Testing:
Speed rpm : 100
Minimum rack travel: 5.30
Speed rpm : 250
Rack travel in mm : 3.80...4.00

CONSTANT REGULATION

Speed rpm : 250...360

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.60...12.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in mm: 9.90...10.10
2nd pressure hPa : 125
Rack travel in mm: 10.20...10.30
3rd pressure hPa : 490
Rack travel in mm: 12.20...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del. quantity cm³/ : 129.5...132.5
1000 s: (127.0...135.0)

BREAKAWAY

1st version

A24

1mm rack travel less than

full load rack tr: 11.60
Speed rpm : 980...990

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 160.0...190.0
1000 s: (156.0...194.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.80...4.00
Del. quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 13,8 f
Edition : 02.09.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 846 891

Injection pump
Pump designation : PE6P120A72ORS3216
EP type number : 0 411 826 781
Governor
Governor design. : RQV300...97SPA898K
Governor no. : 0 421 815 197

Customer-spec. information
Customer : IVECO-UNIC

Engine : 8210.42.269

1st version kW : 261.0
Rated speed : 1950

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 975

Rack travel in mm : 13.10...13.20

Del. quantity cm³/ : 24.1...24.3

100 s : (23.8...24.6)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.3...5.5

Del. quantity cm³/ : 2.4...3.0

100 s : (2.1...3.3)

Spread cm³ : 0.8

100 s : (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.60...2.00

2nd speed rpm : 400
travel mm : 3.20...4.00

3rd speed rpm : 750
travel mm : 6.70...7.10

4th speed rpm : 975
travel mm : 9.60...9.80

5th speed rpm : 1200
travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1015

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 975

Aneroid pressure h : 1200

Del. quantity : 241.0...243.0
1000 : (238.0...246.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 53...61

Testing:

1st rack travel in: 12.10
Speed rpm : 1015...1025
2nd rack travel in: 4.00
Speed rpm : 1085...1115
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:

Speed rpm : 100
Minimum rack travel: 6.90
Speed rpm : 300
Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 280...400

TORQUE CONTROL

Dimension a mm : 1.60
Torque control curve - 1st version
1st speed rpm : 975
Rack travel in m: 13.10...13.20
2nd speed rpm : 830
Rack travel in m: 12.70...12.80
3rd speed rpm : 600
Rack travel in m: 11.80...12.10
4th speed rpm : 350
Rack travel in m: 11.50...11.60

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 975
Pressure hPa : 1200
Rack travel mm : 13.10...13.20

Measurement

Speed 1/min : 975

1st pressure hPa : -
Rack travel in m: 9.00...9.10
2nd pressure hPa : 700

Rack travel in m: 12.00...12.10
3rd pressure hPa : 400
Rack travel in m: 9.80...10.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 350
Del. quantity cm³/ : 169.0...175.0
1000 s: (166.0...178.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 111.0...113.0
1000 s: (108.0...116.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.10
Speed rpm : 1015...1025

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 240.0...260.0
1000 s: (236.0...264.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.30...5.50
Del. quantity cm³/ : 24.0...30.0
1000 s: (21.0...33.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,6 e
Edition : 7.10.88
Replaces : 12.12.86
Test oil : ISO-4113

Combination no. : 0 401 848 708

Injection pump
Pump designation : PE8P110A320LS3802
EP type number : 0 411 818 705
Governor
Governor design. : RQ300/1150PA187-3
Governor no. : 0 421 801 133

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM422

1st version kW : 206,0
Rated speed : 2300
2nd version kW : 206,0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.70...11.80

Del. quantity cm³/ : 11.3...11.5

100 s: (11.0...11.7)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.9...8.1

Del. quantity cm³/ : 1.5...2.1

100 s: (1.2...2.3)

Spread cm³ : 0.4

100 s: (0.7)

1st speed rpm : 1150

Rack travel in mm : 12.3...12.4

Del. quantity cm³/ : 12.7...12.9*

100 s: (-)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 300

Rack travel in mm : 8.00...8.10

Del. quantity cm³/ : 1.5...2.1 *

100 s: (-)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del. quantity : 113.0...115.0
1000 : (110.5...117.5)
Spread cm³ : 4.00
1000 : (7.00)
2nd version
Speed rpm : 1150
Del. quantity cm³/ : 127.0...129.0 *
1000 s : (124.0...132.0)
Spread cm³ : 4.0
1000 s : (8.0)

RATED SPEED

1st version

Setting point:
Speed rpm : 650
Rack travel in mm : 13.5

Testing:

1st rack travel in: 10.70
Speed rpm : 1195...1210
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1350
Speed rpm : 0.00...1.50

2nd version

Setting point:
Speed rpm : 650 *
Rack travel in mm : 13.5

Testing:

1st rack travel in: 11.30
Speed rpm : 1195...1210
2nd rack travel in: 4.00
Speed rpm : 1235...1265
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.1

Testing:

Speed rpm : 100
Minimum rack trave: 10.20
Speed rpm : 300
Rack travel in mm : 8.00...8.20
Rack travel in mm : 2.00
Speed rpm : 420...460
Speed rpm : 550
Maximum rack trave: 1.80

FUEL DELIVERY CHARACTERISTICS

1st version

A28

Speed rpm : 1150
Del. quantity cm³/ : 132.0...136.0
1000 s : (129.0...139.0)
Spread cm³ : 5.00
1000 s : (8.00)

2nd version

Speed rpm : 600
Del. quantity cm³/ : 118.0...122.0 *
1000 s : (115.0...125.0)
Spread cm³ : 8.0
1000 s : (1.1)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1195...1210

2nd version

1mm rack travel less than
full load rack tr: 11.30
Speed rpm : 1195...1210

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 130.0...150.0
1000 s : (126.0...154.0)

Remarks:

:

See VDT-I-401/102.

Version 1: Without return-flow
restriction

Version 2: With return-flow restriction

* Version 2

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,6 e 4
Edition : 16.05.88
Replaces : 13.5.87
Test oil : ISO-4113

Combination no. : 0 401 848 708

Injection pump
Pump designation : PE8P110A32QLS3802-10
EP type number : 0 411 818 710
Governor
Governor design. : RQ300/1150PA187-3
Governor no. : 0 421 801 133

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM422

1st version kW : 206.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.70...11.80

Del. quantity cm³/ : 11.3...11.5

100 s: (11.0...11.7)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0
Rack travel in mm : 7.9...8.1
Del. quantity cm³/ : 1.5...2.1
100 s: (1.2...2.3)
Spread cm³ : 0.4
100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 650
Rack travel in mm : 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 750
Del. quantity : 113.0...115.0
1000 : (110.5...117.5)
Spread cm³ : 4.00
1000 : (7.00)

RATED SPEED

1st version
Setting point:
Speed rpm : 650
Rack travel in mm : 13.5

Testing:
1st rack travel in: 10.70

Speed rpm : 1195...1210
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 8.1

Testing:

Speed rpm : 100

Minimum rack trave: 10.20

Speed rpm : 300

Rack travel in mm : 8.00...8.20

Rack travel in mm : 2.00

Speed rpm : 420...460

Speed rpm : 550

Maximum rack trave: 1.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1150

Del. quantity cm3/ : 132.0...136.0

1000 s: (129.0...139.0)

Spread cm3 : 5.00

1000 s: (8.00)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70

Speed rpm : 1195...1210

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm3/ : 130.0...150.0

1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,6 c 2
Edition : 07.10.88
Replaces : 5.85
Test oil : ISO-4113

Combination no. : 0 401 848 712

Injection pump
Pump designation : PE8P110A320LS3802-10
EP type number : 0 411 818 710
Governor
Governor design. : RQV300...1150PA524-2
Governor no. : 0 421 813 264

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM422

1st version kW : 206.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...0

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.70...11.80

Del. quantity cm³/ : 11.4...11.6

100 s: (11.1...11.8)

Spread cm³ : 0.4

100 s: (-)

2nd speed rpm : 300.0
Rack travel in mm : 7.9...8.1
Del. quantity cm³/ : 1.5...2.1
100 s: (1.2...2.3)
Spread cm³ : 0.4
100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.60...1.80
2nd speed rpm : 800
travel mm : 5.80...6.20
3rd speed rpm : 1200
travel mm : 8.20...8.40
4th speed rpm : 1260
travel mm : 9.60...10.40

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1190
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 750
Del. quantity : 114.0...116.0
1000 : (111.5...118.5)

Spread cm³ : 4.00
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 51...59

Testing:
1st rack travel in: 10.70
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1240...1270

LOW IDLE 1
Control lever
position degrees: 18...26

Testing:
Speed rpm : 100
Minimum rack travel: 9.60
Speed rpm : 300
Rack travel in mm : 7.90...8.10
Rack travel in mm : 2.00
Speed rpm : 430...490

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 1150
Del. quantity cm³/ : 132.0...137.0
1000 s: (129.0...140.0)
Spread cm³ : 7.00
1000 s: (10.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.70
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,6 m 4
Edition : 07.10.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 848 740
Injection pump
Pump designation : PEBP110A32OLS3813-10
EP type number : 0 411 818 712
Governor
Governor design. : RGV350...11SOPA378-8
Governor no. : 0 421 813 725

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM422

1st version kW : 206.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 11.50...11.60

Del. quantity cm³/ : 13.1...13.3

100 s: (12.8...13.5)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 350.0

Rack travel in mm : 7.4...7.6

Del. quantity cm³/ : 1.4...1.8

100 s: (1.1...2.0)

Spread cm³ : 0.4

100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
travel mm : 1.50...1.70

2nd speed rpm : 500
travel mm : 1.70...1.90

3rd speed rpm : 800
travel mm : 4.60...4.90

4th speed rpm : 1200
travel mm : 8.20...8.50

5th speed rpm : 1300
travel mm : 10.00...10.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1200

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del. quantity : 131.0...133.0
1000 : (128.5...135.5)
Spread cm³ : 4.00
1000 : (8.00)

RATED SPEED

1st version
Control lever
position degrees: 60...68

Testing:
1st rack travel in: 10.50
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1250...1280
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 10...14

Testing:
Speed rpm : 100
Minimum rack travel: 8.70
Speed rpm : 350
Rack travel in mm : 7.40...7.60

CONSTANT REGULATION
Speed rpm : 385...495

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del. quantity cm³/ : 109.0...113.0
1000 s: (106.0...116.0)
Spread cm³ : 6.00
1000 s: (9.00)
Speed rpm : 1150
Del. quantity cm³/ : 84.0...87.0 *
1000 s: (81.0...90.0)
Spread cm³ : 6.00
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.50
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:

* = Set at reduced-delivery stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,6 o 1
Edition : 05.08.88
Replaces : 2.85
Test oil : ISO-4113

Combination no. : 0 401 848 744

Injection pump
Pump designation : PE8P120A320LS3816-10
EP type number : 0 411 828 715
Governor
Governor design. : RGV350...1150PA590-1
Governor no. : 0 421 813 3621

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM422A

1st version kW : 243.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 15.8...16.0

100 s: (15.5...16.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0
Rack travel in mm : 4.9...5.1
Del. quantity cm³/ : 1.2...1.8
100 s: (0.9...2.1)
Spread cm³ : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1150
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1150
Aneroid pressure h: 700
Del. quantity : 158.0...160.0
1000 : (155.0...163.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 59...67

Testing:
1st rack travel in: 10.00
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1270...1300
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 6...14

Testing:
Speed rpm : 100
Minimum rack travel: 6.00
Speed rpm : 350
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION
Speed rpm : 370...480

TORQUE CONTROL
Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.00...11.10
2nd speed rpm : 850
Rack travel in m: 11.20...11.40
3rd speed rpm : 750
Rack travel in m: 11.30...11.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.50...11.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.50...10.60
2nd pressure hPa : 470
Rack travel in m: 11.40...11.50
3rd pressure hPa : 400
Rack travel in m: 10.90...11.00

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700

Speed rpm : 600
Del.quantity cm3/ : 166.0...172.0
1000 s: (163.0...175.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 140.0...142.0
1000 s: (137.0...145.0)
Spread cm3 : 8.00
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : BAO 21,2 a
Edition : 05.07.88
Replaces : 4.85
Test oil : ISO-4113
Combination no. : 0 401 848 750
Injection pump
Pump designation : PE8P130A520/4RS3085
EP type number : 0 411 838 705
Governor
Governor design. : RQV400...750PA618-1
Governor no. : 0 421 813 330

Customer-spec. information
Customer : BAUDOUIN

Engine : 8P15

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025
Inlet press., bar : 1.50
Test nozzle holder
assembly : 1 688 901 019
Opening
pressure, bar : 207...210
Orifice plate
diameter mm : 0,8
Test lines : 1 680 750 074
Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
Prestroke mm : 3,20...3,30
 : (3,15...3,35)
Rack travel in mm : 9,00...12,00

B09

Firing order : 1- 2- 4- 5- 6- 3-
 7- 8

Phasing : 0-45-90-135-180-225-
 270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 8.50...8.60

Del. quantity cm³/ : 19.1...19.5

100 s: (19.1...19.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 400.0
Rack travel in mm : 3.9...4.1
Del. quantity cm³/ : 2.3...2.9
100 s: (2.3...2.9)
Spread cm³ : 0.8
100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400
travel mm : 0.90...1.10
2nd speed rpm : 475
travel mm : 1.80...2.30
3rd speed rpm : 600
travel mm : 1.80...2.30
4th speed rpm : 750
travel mm : 4.70...5.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Del. quantity : 191.0...195.0
1000 : (191.0...195.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 44...52

Testing:

1st rack travel in: 7.50
Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 775...785
4th rack travel in: 900
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20

Testing:

Speed rpm : 100
Minimum rack travel: 5.60
Speed rpm : 400
Rack travel in mm : 3.90...4.10

START CUT-OUT

Speed 1/min : 320 (340)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 7.50
Speed rpm : 750...755

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 17,2 d
Edition : 25.03.88
Replaces : 26.2.88
Test oil : ISO-4113

Combination no. : 0 401 848 757

Injection pump
Pump designation : PE8P120A920/SLS3827
EP type number : 0 411 828 712
Governor
Governor design. : RQV300...900PA475-1
Governor no. : 0 421 813 420

Customer-spec. information
Customer : IVECO-FIAT

Engine : 8280.22.201

1st version kW : 309.0
Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 8- 4- 3- 6- 5-
 7- 2

Phasing : 0-45-90-135-180-225-
 270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.60...12.70

Del. quantity cm³/ : 21.2...21.4

100 s: (20.9...21.7)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 5.0...5.2
Del. quantity cm³/ : 1.7...2.3
100 s: (1.4...2.6)
Spread cm³ : 0.6
100 s: (1.0)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.40...1.80
2nd speed rpm : 450
travel mm : 3.60...4.00
3rd speed rpm : 750
travel mm : 6.10...6.50
4th speed rpm : 900
travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 960
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 900
Aneroid pressure h: 900

Del. quantity : 212.0...214.0
1000 : (209.0...217.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 56...64

Testing:
1st rack travel in: 11.60
Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 1050...1080
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 7...15

Testing:
Speed rpm : 100
Minimum rack travel: 6.40
Speed rpm : 300
Rack travel in mm : 5.00...5.20

CONSTANT REGULATION
Speed rpm : 310...415

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.60...12.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.00...9.30
2nd pressure hPa : 440
Rack travel in m: 11.60...11.70
3rd pressure hPa : 340
Rack travel in m: 9.60...10.00

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 550
Del. quantity cm³/ : 227.0...235.0
1000 s: (224.0...238.0)

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 132.0...134.0
1000 s: (129.0...137.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.60
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 170.0...200.0
1000 s: (166.0...204.0)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,6 k 8
Edition : 24.06.88
Replaces : 30.3.87
Test oil : ISO-4113

Combination no. : 0 401 848 762

Injection pump
Pump designation : PEBP120A320LS3807-10
EP type number : 0 411 828 713
Governor
Governor design. : RGV300...1150PA545-7
Governor no. : 0 421 813 595

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM 422 A

1st version kW : 243.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 10.70...10.80

Del. quantity cm³/ : 15.9...16.1

100 s: (15.6...16.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 5.0...5.2
Del. quantity cm³/ : 1.2...1.8
100 s: (0.9...2.1)
Spread cm³ : 0.8
100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.60...1.80
2nd speed rpm : 800
travel mm : 6.00...6.20
3rd speed rpm : 1200
travel mm : 8.00...8.20
4th speed rpm : 1300
travel mm : 9.00...9.50

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1190
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150
Aneroid pressure h: 700
Del. quantity : 159.0...161.0
1000 : (156.0...164.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 46...54

Testing:

1st rack travel in: 9.70
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1270...1300
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 15...23

Testing:

Speed rpm : 100
Minimum rack travel: 6.70
Speed rpm : 300
Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

Speed rpm : 300...400

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 10.70...10.80
2nd speed rpm : 750
Rack travel in m: 11.00...11.20
3rd speed rpm : 700
Rack travel in m: 11.00...11.20

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.00...10.30

Measurement

Speed 1/min : 500

1st pressure hPa : 450
Rack travel in m: 10.10...10.20
2nd pressure hPa : 500

Rack travel in m: 10.50...10.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 750
Del. quantity cm³/ : 173.5...175.5
1000 s: (170.5...178.5)
Spread cm³ : 7.00
1000 s: (12.0)
Aneroid pressure h: 700
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 138.0...140.0
1000 s: (135.0...143.0)
Spread cm³ : 7.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 c 7
Edition : 24.06.88
Replaces : 25.3.88
Test oil : ISO-4113

Combination no. : 0 401 848 781

Injection pump
Pump designation : PE8P110A320LS3842
EP type number : 0 411 818 714
Governor
Governor design. : RQ300/950PA827-6K
Governor no. : 0 421 803 098

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM442

1st version kW : 206.0
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 13.60...13.70

Del. quantity cm³/ : 13.4...13.6

100 s: (13.1...13.8)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 300.0
Rack travel in mm : 8.8...9.0
Del. quantity cm³/ : 1.5...2.1
100 s: (1.2...2.3)
Spread cm³ : 0.4
100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.90...2.20
2nd speed rpm : 500
travel mm : 5.50...5.60
3rd speed rpm : 775
travel mm : 6.20...6.40
4th speed rpm : 950
travel mm : 7.30...7.70
5th speed rpm : 1020
travel mm : 9.50...10.00

GUIDE SLEEVE POSITION

Control-lever position
Degree: -2
Speed rpm : 600
Rack travel in mm : 14.70...15.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 950

Del. quantity : 134.0...136.0
1000 : (131.5...138.5)
Spread cm³ : 4.00
1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600
Rack travel in mm : 15.2

Testing:

1st rack travel in: 12.50
Speed rpm : 995...1010
2nd rack travel in: 4.00
Speed rpm : 1055...1085
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.9

Testing:

Speed rpm : 200
Minimum rack travel: 11.50
Speed rpm : 300
Rack travel in mm : 8.80...9.00
Rack travel in mm : 3.00
Speed rpm : 480...530
Speed rpm : 600
Maximum rack travel: 1.80

TORQUE CONTROL

Dimension a mm : 0.70
Torque control curve - 1st version
1st speed rpm : 950
Rack travel in m: 13.60...13.70
2nd speed rpm : 500
Rack travel in m: 12.90...13.10
3rd speed rpm : 750
Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del. quantity cm³/ : 115.0...118.0
1000 s: (112.0...121.0)
Spread cm³ : 8.00
1000 s: (11.0)
Speed rpm : 750
Del. quantity cm³/ : 122.0...126.0
1000 s: (119.0...129.0)
Spread cm³ : 8.00
1000 s: (11.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.50
Speed rpm : 995...1010

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 14,5 b
Edition : 14.10.88
Replaces : 2.12.86
Test oil : ISO-4113

Combination no. : 0 401 848 785

Injection pump
Pump designation : PE8P120A520/4LS3834
EP type number : 0 411 828 718
Governor
Governor design. : RQV250...i150PA668-7
Governor no. : 0 421 813 481

Customer-spec. information

Customer : MAN

Engine : D 2848 LE

1st version kW : 375.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.20...4.30
: (4.15...4.35)
Rack travel in mm : 9.00...12.00
Firing order : 8-7-2-6-3-5-4-1

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 11.80...11.90

Del. quantity cm³/ : 20.9...21.1

100 s: (20.6...21.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250

Rack travel in mm : 6.60...6.80

Del. quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.5

100 s: (0.9)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.20

2nd speed rpm : 800
travel mm : 6.30...6.50

3rd speed rpm : 1150
travel mm : 8.40...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del. quantity : 209.0...211.0

1000 : (206.0...214.0)

Spread cm³ : 5.0

1000 : (9.0)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:
1st rack travel in: 10.80
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1330...1360
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16

Testing:
Speed rpm : 100
Minimum rack travel: 8.20
Speed rpm : 250
Rack travel in mm : 6.60...6.80
Rack travel in mm : 2.00
Speed rpm : 400...460

START CUT-OUT

Speed 1/min : 200 (220)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.80
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 190.0...210.0
1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.60...6.80
Del. quantity cm³/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm³ : 8.0
1000 s: (12.0)

Remarks:
: MAN-NR. 2-7846

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 c 3
Edition : 09.09.88
Replaces : 7.12.87
Test oil : ISO-4113

Combination no. : 0 401 848 790

Injection pump
Pump designation : PE8P110A320LS3842
EP type number : 0 411 818 714
Governor
Governor design. : RQ300/1050PA187-17
Governor no. : 0 421 801 410

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM442

1st version kW : 192.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
Tolerance + - ° : 0.50 (0.75)
Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.50...11.60

Del. quantity cm³/ : 11.7...11.9

100 s: (11.4...12.1)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 300.0
Rack travel in mm : 8.4...8.6
Del. quantity cm³/ : 1.5...2.1
100 s: (1.2...2.3)
Spread cm³ : 0.4
100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 600
Rack travel in mm : 13.20...14.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del. quantity : 117.0...119.0
1000 : (114.5...121.5)
Spread cm³ : 4.00
1000 : (8.00)

RATED SPEED

1st version
Setting point:
Speed rpm : 600
Rack travel in mm : 13.7

Testing:
1st rack travel in: 10.50

Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.9

Testing:

Speed rpm : 200
Minimum rack trave: 9.00
Speed rpm : 300
Rack travel in mm : 6.80...7.00
Rack travel in nm : 2.00
Speed rpm : 400...440

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del. quantity cm3/ : 97.0...100.0
1000 s: (94.0...103.0)
Spread cm3 : 8.00
1000 s: (11.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 c 5
Edition : 05.08.88
Replaces : 18.10.87
Test oil : ISO-4113

Combination no. : 0 401 848 794

Injection pump
Pump designation : PE8P110A32OLS3842
EP type number : 0 411 818 714
Governor
Governor design. : RQ300/1050PA187-18
Governor no. : 0 421 801 430

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM442

1st version kW : 213.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5-
4- 1

Phasing : 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)
Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.70...12.80

Del. quantity cm³/ : 12.6...12.8

100 s: (12.3...13.0)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0
Rack travel in mm : 8.2...8.5
Del. quantity cm³/ : 1.5...2.1
100 s: (1.2...2.3)
Spread cm³ : 0.4
100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 650
Rack travel in mm : 13.60...14.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 750
Del. quantity : 126.0...128.0
1000 : (123.5...130.5)
Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Setting point:
Speed rpm : 650
Rack travel in mm : 14.0

Testing:
1st rack travel in: 11.70

Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1350
Speed rpm : 0.00...2.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.9

Testing:

Speed rpm : 200
Minimum rack trave: 9.00
Speed rpm : 300
Rack travel in mm : 6.80...7.00
Rack travel in mm : 2.00
Speed rpm : 400...440

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1050
Del.quantity cm3/ : 136.0...140.0
1000 s: (133.0...143.0)
Spread cm3 : 7.00
1000 s: (10.0)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 d 6
Edition : 01.07.88
Replaces : 11.3.88
Test oil : ISO-4113

Combination no. : 0 401 848 795

Injection pump
Pump designation : PE8P110A320LS3842
EP type number : 0 411 818 714
Governor
Governor design. : RQV300..1050PA884-1
Governor no. : 0 421 813 686

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM442

1st version kW : 213.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
Tolerance + - ° : 0.50 (0.75)
Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.70...12.80

Del. quantity cm³/ : 12.6...12.8

100 s: (12.3...13.0)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0
Rack travel in mm : 8.4...8.8
Del. quantity cm³/ : 1.5...2.1
100 s: (1.2...2.3)
Spread cm³ : 0.4
100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.10...1.40
2nd speed rpm : 800
travel mm : 7.80...8.20
3rd speed rpm : 1100
travel mm : 8.20...8.60
4th speed rpm : 1150
travel mm : 9.10...9.70

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1085
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 750
Del. quantity : 126.0...128.0
1000 : (123.5...130.5)

Spread cm3 : 4.00
1000 : (7.50)

Remarks:
:

RATED SPEED

1st version
Control lever
position degrees: 53...61

Testing:

1st rack travel in: 11.70
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 18...26

Testing:

Speed rpm : 200
Minimum rack travel: 10.00
Speed rpm : 300
Rack travel in mm : 6.80...7.00

CONSTANT REGULATION

Speed rpm : 300...400

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1050
Del. quantity cm3/ : 136.0...140.0
1000 s: (133.0...143.0)
Spread cm3 : 7.00
1000 s: (10.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Test sheet : MB 14,6 m 3
 Edition : 27.10.88
 Replaces : 12.2.88
 Test oil : ISO-4113

Combination no. : 0 401 848 797

Injection pump
 Pump designation : PE8P110A320LS3813-10
 EP type number : 0 411 818 712
 Governor
 Governor design. : RQV350...1150PA378-8
 Governor no. : 0 421 813 725

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM422

1st version kW : 206,0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.70...11.80

Del. quantity cm³/ : 11.4...11.6

100 s: (11.1...11.8)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 350.0

Rack travel in mm : 7.4...7.7

Del. quantity cm³/ : 1.4...1.8

100 s: (1.1...2.0)

Spread cm³ : 0.4

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.90...2.10

2nd speed rpm : 500
 travel mm : 3.20...3.50

3rd speed rpm : 800
 travel mm : 4.50...4.80

4th speed rpm : 1200
 travel mm : 8.00...8.50

5th speed rpm : 1275
 travel mm : 9.30...9.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1230

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del. quantity : 114.0...116.0
1000 : (111.5...118.5)
Spread cm³ : 4.00
1000 : (8.00)

RATED SPEED

1st version
Control lever
position degrees: 60...68

Testing:

1st rack travel in: 10.70
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1250...1280
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 14...24

Testing:

Speed rpm : 200
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 7.40...7.70

CONSTANT REGULATION

Speed rpm : 350...700

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1150
Del. quantity cm³/ : 132.0...137.0
1000 s: (129.0...140.0)

Spread cm³ : 6.00
1000 s: (9.00)

Speed rpm : 1150
Del. quantity cm³/ : 84.0...87.0 *
1000 s: (81.0...90.0)

Spread cm³ : 6.00
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:

* = Set at reduced-delivery stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 14,5 c
Edition : 11.07.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 848 799
Injection pump
Pump designation : PE8P120A520/4LS3847
EP type number : 0 411 828 722
Governor
Governor design. : RQ750PA663-8
Governor no. : 0 421 801 448

Customer-spec. information
Customer : MAN

Engine : D 2848 LE

1st version kW : 265.0
Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 4.20...4.30
 : (4.15...4.35)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.40...14.50

Del. quantity cm³/ : 24.6...24.8

100 s : (24.3...25.1)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.6...6.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 246.0...248.0

1000 : (243.0...251.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Testing:

1st rack travel in: 13.40

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 782...795

4th rack travel in: 900

Speed rpm : 0.00...1.00

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 200.0...220.0

1000 s : (196.0...224.0)

Remarks:

:

APPLICATION
Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 d 7
 Edition : 07.10.88
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 848 800

Injection pump
 Pump designation : PE8P110A320LS3842-1
 EP type number : 0 411 818 716
 Governor
 Governor design. : RQV350..1050PA378-7
 Governor no. : 0 421 813 714

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM442

1st version kW : 213.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.70...12.80

Del. quantity cm³/ : 12.4...12.6

100 s: (12.1...12.8)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 350.0

Rack travel in mm : 8.0...8.3

Del. quantity cm³/ : 1.5...2.1

100 s: (1.2...2.3)

Spread cm³ : 0.4

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.50...1.70

2nd speed rpm : 800

travel mm : 4.90...5.30

3rd speed rpm : 1100

travel mm : 7.90...8.50

4th speed rpm : 1150

travel mm : 8.90...9.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1110

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del. quantity : 124.0...126.0

1000 : (121.5...128.5)

Spread cm³ : 4.00
1000 : (7.00)

RATED SPEED

1st version
Control lever
position degrees: 56...64

Testing:

1st rack travel in: 11.70
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18

Testing:

Speed rpm : 250
Minimum rack travel: 9.50
Speed rpm : 350
Rack travel in mm : 8.00...8.30

CONSTANT REGULATION

Speed rpm : 350...450

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1050
Del. quantity cm³/ : 137.0...141.0
1000 s: (134.0...144.0)

Spread cm³ : 5.00
1000 s: (8.00)

Speed rpm : 1050
Del. quantity cm³/ : 87.0...89.0
1000 s: (84.0...92.0)

Spread cm³ : 6.00
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

CO2

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 n
Edition : 26.08.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 848 801
Injection pump
Pump designation : PEBP110A320LS3848
EP type number : 0 411 818 718
Governor
Governor design. : RQV300...950PA884-4
Governor no. : 0 421 813 716

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM442

1st version kW : 206.0
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 13.50...13.60

Del. quantity cm³/ : 13.3...13.5

100 s: (13.0...13.7)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 300.0
Rack travel in mm : 8.8...9.0
Del. quantity cm³/ : 1.5...2.1
100 s: (1.2...2.3)
Spread cm³ : 0.4
100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.10...1.30
2nd speed rpm : 500
travel mm : 3.30...3.60
3rd speed rpm : 800
travel mm : 6.30...6.60
4th speed rpm : 1000
travel mm : 8.30...8.70
5th speed rpm : 1075
travel mm : 9.50...10.00

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 980
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 950

Del. quantity : 133.0...135.0
1000 : (130.5...137.5)
Spread cm³ : 4.00
1000 : (8.00)

RATED SPEED

1st version
Control lever
position degrees: 50...58

Testing:
1st rack travel in: 12.50
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1045...1075
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 15...23

Testing:
Speed rpm : 100
Minimum rack trave: 10.50
Speed rpm : 300
Rack travel in mm : 8.80...9.00

CONSTANT REGULATION
Speed rpm : 300...450

START CUT-OUT

Speed 1/min : 220 (240)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.50
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 18,3 c
Edition : 02.09.88
Replaces : 20.6.88
Test oil : ISO-4113
Combination no. : 0 401 849 705
Injection pump
Pump designation : PE10P110A320LS3818
EP type number : 0 411 819 702
Governor
Governor design. : RQ300/1150PA437-2
Governor no. : 0 421 801 171

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM 423

1st version kW : 261.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 130...140

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 10- 9- 4- 1- 8- 7
 - 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
 216-261-288-333
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 11.20...11.30

Del. quantity cm³/ : 12.6...12.8

100 s: (12.3...13.0)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 300.0
Rack travel in mm : 7.9...8.1
Del. quantity cm³/ : 1.2...2.0
100 s: (0.9...2.2)
Spread cm³ : 0.4
100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 600
Rack travel in mm : 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1150
Del. quantity : 126.0...128.0
1000 : (123.5...130.5)
Spread cm³ : 4.00
1000 : (8.00)

RATED SPEED

1st version
Setting point:
Speed rpm : 600
Rack travel in mm : 13.5

Testing:
1st rack travel in: 10.20

Speed rpm : 1190...1205
2nd rack travel in: 4.00
Speed rpm : 1225...1255
4th rack travel in: 1350
Speed rpm : 0.00...1.50

Remarks:
:

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.0

Testing:

Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 300
Rack travel in mm : 7.90...8.10
Rack travel in mm : 2.00
Speed rpm : 430...470

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 11.20...11.30
2nd speed rpm : 600
Rack travel in m: 11.70...11.90
3rd speed rpm : 900
Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 109.0...113.0
1000 s: (106.0...116.0)
Spread cm3 : 6.00
1000 s: (9.00)
Speed rpm : 900
Del.quantity cm3/ : 118.0...123.0
1000 s: (115.0...126.0)
Spread cm3 : 6.00
1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1190...1205

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 15,8 q
Edition : 16.05.88
Replaces : 13.5.87
Test oil : ISO-4113

Combination no. : 0 401 849 728

Injection pump
Pump designation : PE10P110A920/SLS3138
EP type number : 0 411 819 707
Governor
Governor design. : RQV425....900PA814
Governor no. : 0 421 813 558

Customer-spec. information
Customer : KHD

Engine : F10L513 OPT.

1st version kW : 188.0
Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.10...3.20
 : (3.05...3.25)
Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-
 5- 8- 7- 2

Phasing : 0-27-72-99-144-171-
 216-243-288-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.40...10.50

Del. quantity cm³/ : 9.4...9.6

100 s: (9.1...9.9)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 425.0

Rack travel in mm : 7.3...7.5

Del. quantity cm³/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm³ : 0.4

100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 425
travel mm : 1.30...1.70

2nd speed rpm : 450
travel mm : 2.10...2.70

3rd speed rpm : 550
travel mm : 3.40...4.00

4th speed rpm : 950
travel mm : 8.40...8.60

5th speed rpm : 1000
travel mm : 9.20...9.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 950

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del. quantity : 94.0...96.0

1000 : (91.0...99.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version

Control lever
position degrees: 50...58

Testing:

1st rack travel in: 9.40
Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 980...1010
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 22...30

Testing:

Speed rpm : 100
Minimum rack travel: 8.80
Speed rpm : 425
Rack travel in mm : 7.30...7.50

CONSTANT REGULATION

Speed rpm : 435...490

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.40...10.50
2nd speed rpm : 550
Rack travel in m: 10.70...10.80
3rd speed rpm : 675
Rack travel in m: 10.70...10.80
4th speed rpm : 750
Rack travel in m: 10.60...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 675
Del. quantity cm³/ : 96.0...100.0
1000 s: (94.0...102.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 940...950

STARTING FUEL DELIVERY

CO8

Speed rpm : 100
Del. quantity cm³/ : 135.0...165.0
1000 s: (131.0...169.0)

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Compressor

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 18,3 e 4
Edition : 07.10.88
Replaces : 16.6.87
Test oil : IS0-4113

Combination no. : 0 401 849 733

Injection pump
Pump designation : PE10P120A320LS3824
-10
EP type number : 0 411 829 701
Governor
Governor design. : RQ300/1150PAS46-11
Governor no. : 0 421 801 384

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM 423 A

1st version kW : 301.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 130...150

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 10- 9- 4- 1- 8- 7-
6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
216-261-288-333
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 15.2...15.4

100 s: (14.9...15.7)

Spread cm³ : 0.5

100 s: (0.8)

2nd speed rpm : 300.0
Rack travel in mm : 5.0...5.2
Del. quantity cm³/ : 1.6...2.2
100 s: (1.3...2.5)
Spread cm³ : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -2
Speed rpm : 600
Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1150
Aneroid pressure h: 700
Del. quantity : 152.0...154.0
1000 : (149.0...157.0)
Spread cm³ : 5.00
1000 : (8.00)

RATED SPEED

1st version
Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.10
Speed rpm : 1195...1210
2nd rack travel in: 4.00
Speed rpm : 1250...1280
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.1

Testing:

Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 300
Rack travel in mm : 5.00...5.20
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 11.00...11.10
2nd speed rpm : 750
Rack travel in m: 11.60...11.80

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.40...10.60

Measurement

Speed 1/min : 500

1st pressure hPa : 360
Rack travel in m: 10.50...10.60
2nd pressure hPa : 420
Rack travel in m: 10.90...11.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 750

Del.quantity cm3/ : 169.0...172.0
1000 s: (166.0...175.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 134.0...136.0
1000 s: (131.0...139.0)
Spread cm3 : 8.00
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1195...1210

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 18,3 o
Edition : 02.09.88
Replaces : 5.2.88
Test oil : ISO-4113

Combination no. : 0 401 849 742

Injection pump
Pump designation : PE10P110A32OLS3844
EP type number : 0 411 819 710
Governor
Governor design. : RQV300..1050PA884-2
Governor no. : 0 421 813 688

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM 443

1st version kW : 265.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 130...150

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 10- 9- 4- 1- 8- 7-
 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
 216-261-288-333
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.50...12.60

Del. quantity cm³/ : 12.3...12.5

100 s: (12.0...12.7)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 300.0
Rack travel in mm : 8.0...8.3
Del. quantity cm³/ : 1.5...2.1
100 s: (1.2...2.3)
Spread cm³ : 0.4
100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.10...1.40
2nd speed rpm : 650
travel mm : 5.00...5.40
3rd speed rpm : 1100
travel mm : 8.20...8.60
4th speed rpm : 1160
travel mm : 9.20...9.80

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1080
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 750
Del. quantity : 123.0...125.0
1000 : (120.5...127.5)

Spread cm³ : 4.00
1000 : (8.00)

Remarks: :

RATED SPEED

1st version
Control lever
position degrees: 49...57

Testing:
1st rack travel in: 11.50
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 17...25

Testing:
Speed rpm : 200
Minimum rack travel: 9.00
Speed rpm : 300
Rack travel in mm : 6.80...7.10

CONSTANT REGULATION
Speed rpm : 300...420

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 1050
Del. quantity cm³/ : 134.0...138.0
1000 s: (131.0...141.0)
Spread cm³ : 6.00
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.50
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,6o10
Edition : 24.10.88
Replaces : 9.3.87
Test oil : ISO-4113

Combination no. : 0 401 876 293

Injection pump
Pump designation : PE6P120A32ORS415-12
EP type number : 0 411 826 136
Governor
Governor design. : RSV250...900P5A508
Governor no. : 0 421 833 193

Customer-spec. information
Customer : DAF

Engine : DKX 1160E

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

C13

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 11.70...11.80

Del. quantity cm³/ : 17.4...17.6

100 s: (17.1...17.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0
Rack travel in mm : 6.7...6.9
Del. quantity cm³/ : 1.4...2.0
100 s: (1.1...2.3)
Spread cm³ : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STGP

1st version
Speed rpm : 600
Aneroid pressure h: 700
Del. quantity : 174.0...176.0
1000 : (171.0...179.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 45...53

Testing:
1st rack travel in: 10.00
Speed rpm : 935...945
2nd rack travel in: 4.00
Speed rpm : 1010...1040
3rd rack travel in: 4.00

Speed rpm : 1020...1050
4th rack travel in: 1180
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.0
Speed rpm : 250
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 395...455

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 11.00...11.10
2nd speed rpm : 600
Rack travel in m: 11.90...12.00
3rd speed rpm : 725
Rack travel in m: 11.50...11.70
4th speed rpm : 775
Rack travel in m: 11.20...11.40

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 11.70...11.80

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.40...10.60
2nd pressure hPa : 300
Rack travel in m: 11.10...11.20
3rd pressure hPa : 255
Rack travel in m: 10.50...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 875
Del.quantity cm³/ : 170.0...174.0
1000 s: (167.0...177.0)
Speed rpm : 600
Del.quantity cm³/ : 140.0...142.0
1000 s: (137.0...145.0)

BREAKAWAY

C14

1st version
1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 935...945

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 305.0...345.0
1000 s: (301.0...349.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.40...6.60

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 7,1 c 1
Edition : 04.11.88
Replaces : 9.3.87
Test oil : ISO-4113

Combination no. : 0 401 876 322

Injection pump
Pump designation : PE6P110A32ORS497
EP type number : 0 411 816 165
Governor
Governor design. : RSV200...1200P1A374-
2
Governor no. : 0 421 833 205

Customer-spec. information
Customer : VOLVO

Engine : TJD71A

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.70...11.80

Del. quantity cm³/ : 11.6...11.8
100 s : (11.3...12.1)

Spread cm³ : 0.4
100 s : (0.7)

2nd speed rpm : 200.0

Rack travel in mm : 5.2...5.4

Del. quantity cm³/ : 1.6...2.2
100 s : (-)

Spread cm³ : 0.3
100 s : (0.6)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h : 900

Del. quantity : 116.0...118.0
1000 : (113.0...121.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 54...62

Testing:

1st rack travel in: 10.70
Speed rpm : 1240...1250

2nd rack travel in: 4.00
Speed rpm : 1290...1320

4th rack travel in: 1420
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 200
Rack travel in mm : 4.8
Speed rpm : 200
Rack travel in mm : 5.20...5.40
Rack travel in mm : 2.00
Speed rpm : 280...340

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 11.70...11.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.40...9.50
2nd pressure hPa : 800
Rack travel in m: 11.60...11.70
3rd pressure hPa : 270
Rack travel in m: 9.10...9.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del. quantity cm³/ : 66.0...68.0
1000 s: (63.0...71.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 185.0...215.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 200
Rack travel in mm : 5.20...5.40

C16

Del. quantity cm³/ : 16.0...22.0
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 f1
Edition : 07.10.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 876 332A

Injection pump
Pump designation : PE6P100A820LS130
EP type number : 0 411 806 179
Governor
Governor design. : RSV250...1000P1A532
Governor no. : 0 421 833 273

Customer-spec. information
Customer : ENASA

Engine : 95 A1 COMR 400

1st version kW : 125.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
Rack travel in mm : 9.00...12.00

C17

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.40...11.50

Del. quantity cm³/ : 11.0...11.2

100 s: (10.8...11.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del. quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 110.0...112.0

1000 : (108.0...114.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 52...60

Testing:

1st rack travel in: 10.40

Speed rpm : 1090...1100

2nd rack travel in: 4.00

Speed rpm : 1120...1150

3rd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1280
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 250
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 350...410

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.40...11.50
2nd speed rpm : 450
Rack travel in m: 11.40...11.50
3rd speed rpm : 250
Rack travel in m: 12.70...13.30

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 260.0...280.0
1000 s: (256.0...284.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 200
Rack travel in mm : 5.90...6.10

Remarks:

:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 g
Edition : 16.06.88
Replaces : 25.3.88
Test oil : ISO-4113
Combination no. : 0 401 876 333
Injection pump
Pump designation : PE6P120A32ORS257
EP type number : 0 411 826 075
Governor
Governor design. : RSV250...1100POA533
Governor no. : 0 421 833 274

Customer-spec. information
Customer : ENASA

Engine : 96 T1A0

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.20...11.30

Del. quantity cm³/ : 21.3...21.5

100 s : (21.0...21.8)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.7...5.9

Del. quantity cm³/ : 1.7...2.3

100 s : (1.4...2.6)

Spread cm³ : 0.8

100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 213.0...215.0

1000 : (210.0...218.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 10.20

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1180...1210

3rd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 250
Rack travel in mm : 5.70...5.90
Rack travel in mm : 2.00
Speed rpm : 350...410

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.20...11.30
2nd speed rpm : 450
Rack travel in m: 11.20...11.30
3rd speed rpm : 250
Rack travel in m: 12.40...13.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 f
Edition : 16.06.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 876 335
Injection pump
Pump designation : PE6P120A32ORS415-1
EP type number : 0 411 826 123
Governor
Governor design. : RSV250...1100PSA508
-8
Governor no. : 0 421 833 298

Customer-spec. information
Customer : DAF

Engine : DKV 1160

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025
Inlet press., bar : 1.50
Test nozzle holder
assembly : 1 688 901 019
Opening
pressure, bar : 207...210
Orifice plate
diameter mm : 0,8
Test lines : 1 680 750 067
Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 650
Rack travel in mm : 11.10...11.20
Del. quantity cm³/ : 17.1...17.3
100 s: (16.8...17.6)
Spread cm³ : 0.5
100 s: (0.9)

2nd speed rpm : 250.0
Rack travel in mm : 6.7...6.9
Del. quantity cm³/ : 1.4...2.0
100 s: (1.1...2.3)
Spread cm³ : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 650
Aneroid pressure h: 700
Del. quantity : 171.0...173.0
1000 : (168.0...176.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 45...53

Testing:
1st rack travel in: 9.10
Speed rpm : 1135...1145
2nd rack travel in: 4.00
Speed rpm : 1175...1205

3rd rack travel in: 4.00
Speed rpm : 1210...1240
4th rack travel in: 1375
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.8

Testing:

Speed rpm : 100
Speed rpm : 250
Rack travel in mm : 6.20...6.40
Rack travel in mm : 2.00
Speed rpm : 630...730

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 650
Rack travel in m: 11.40...11.50
2nd speed rpm : 1090
Rack travel in m: 10.10...10.30
3rd speed rpm : 800
Rack travel in m: 10.80...11.00
4th speed rpm : 850
Rack travel in m: 10.40...10.70

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 11.10...11.20

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 9.40...9.60
2nd pressure hPa : 290
Rack travel in m: 10.70...10.90
3rd pressure hPa : 260
Rack travel in m: 10.20...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 1090
Del. quantity cm³/ : 158.0...162.0
1000 s: (155.0...165.0)
Aneroid pressure h: -
Speed rpm : 600

Del. quantity cm³/ : 129.0...131.0
1000 s: (126.0...134.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.10
Speed rpm : 1135...1145

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 320.0...360.0
1000 s: (316.0...364.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.20...6.40

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Test sheet : DAF 11,7 g
 Edition : 30.09.88
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 876 336

Injection pump
 Pump designation : PE6P120A32ORS415-1
 EP type number : 0 411 826 123
 Governor
 Governor design. : RSV250...10SOP5A539
 Governor no. : 0 421 833 299

Customer-spec. information
 Customer : DAF

Engine : KT 191

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

C23

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 650

 Rack travel in mm : 10.80...10.90

 Del. quantity cm³/ : 16.1...16.3

 100 s : (15.8...16.6)

 Spread cm³ : 0.5

 100 s : (0.9)

 2nd speed rpm : 250.0
 Rack travel in mm : 6.7...6.9
 Del. quantity cm³/ : 1.4...2.0
 100 s : (1.1...2.3)
 Spread cm³ : 0.8
 100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 650
 Aneroid pressure h : 700
 Del. quantity : 161.0...163.0
 1000 : (158.0...166.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 46...54

Testing:
 1st rack travel in: 9.20
 Speed rpm : 1085...1095
 2nd rack travel in: 4.00
 Speed rpm : 1125...1155
 3rd rack travel in: 4.00

Speed rpm : 1150...1180
4th rack travel in: 1320
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.8
Speed rpm : 250
Rack travel in mm : 6.20...6.40
Rack travel in mm : 2.00
Speed rpm : 630...730

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1040
Rack travel in m: 10.20...10.40
2nd speed rpm : 650
Rack travel in m: 11.10...11.20
3rd speed rpm : 805
Rack travel in m: 10.80...11.00
4th speed rpm : 850
Rack travel in m: 10.50...10.70

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 10.80...10.90

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 9.50...9.70
2nd pressure hPa : 310
Rack travel in m: 10.40...10.50
3rd pressure hPa : ?
Rack travel in m: 9.90...10.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 1040
Del. quantity cm³/ : 160.0...164.0
1000 s: (157.0...167.0)
Aneroid pressure h: -
Speed rpm : 600
Del. quantity cm³/ : 130.0...132.0
1000 s: (127.0...135.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 1085...1095

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 320.0...360.0
1000 s: (316.0...364.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.20...6.40

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,0 r7
Edition : 01.09.88
Replaces : 24.7.87
Test oil : ISO-4113

Combination no. : 0 401 876 734

Injection pump
Pump designation : PE6P110A72ORS3040-1
EP type number : 0 411 816 738
Governor
Governor design. : RSV350...1100P1/S05
Governor no. : 0 421 833 148

Customer-spec. information
Customer : SCANIA

Engine : DS 11 05

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.30...3.40
 : (3.25...3.45)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-20-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.10...13.20

Del. quantity cm³/ : 15.6...15.8

100 s: (15.4...16.0)

Spread cm³ : 0.6

100 s: (0.8)

2nd speed rpm : 350.0

Rack travel in mm : 4.4...4.6

Del. quantity cm³/ : 1.8...2.2

100 s: (-)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 156.0...158.0

1000 : (154.0...160.0)

Spread cm³ : 6.00

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 12.10

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1210...1240

4th rack travel in: 1370

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 27...35

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 4.0

Speed rpm : 350

Rack travel in mm : 4.40...4.60

Rack travel in mm : 2.00

Speed rpm : 440...500

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700

Del. quantity cm³/ : 156.5...161.5

1000 s: (154.0...164.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.10

Speed rpm : 1140...1150

INTERMEDIATE RATED SPEED

Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 240.0...290.0

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 4.40...4.60

Del. quantity cm³/ : 18.0...22.0

1000 s: (-)

Spread cm³ : 2.00

1000 s: (4.00)

Remarks:

:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over
on 1983-10-05

Start of delivery - engine: 20° before
TDC

Firing sequence of engine:

1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 q 4
 Edition : 05.08.88
 Replaces : 7.12.87
 Test oil : ISO-4113

Combination no. : 0 401 876 740

Injection pump
 Pump designation : PE6P120A32OLS3815-10
 EP type number : 0 411 826 735
 Governor
 Governor design. : RSV750...1150P1A820-
 4
 Governor no. : 0 421 833 179

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM421A

1st version kW : 184.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 16.3...16.5

100 s: (16.0...16.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 750.0

Rack travel in mm : 3.3...3.6

Del. quantity cm³/ : 2.0...2.6

100 s: (1.7...2.9)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1180

Del. quantity : 163.0...165.0

1000 : (160.0...168.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 56...64

Testing:

1st rack travel in: 10.00
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1235...1255
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 32...40
Setting point w/out bumper spring
Speed rpm : 750
Rack travel in mm : 3.4
Speed rpm : 750
Rack travel in mm : 3.30...3.50
Rack travel in mm : 2.00
Speed rpm : 755...815

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1180
Rack travel in m: 11.00...11.10
2nd speed rpm : 975
Rack travel in m: 11.40...11.60
3rd speed rpm : 600
Rack travel in m: 11.80...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 950
Del. quantity cm³/ : 174.0...178.0
1000 s: (171.0...181.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:
Engine-speed difference between 1 mm
regulated and control-rod travel 4 mm =
25...35 1/min.

When adjusting and checking, adjust
speed regulation to 1210...1220 l/min.
Afterwards, readjust speed regulation
to 1160...1170 l/min.

APPLICATION

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 12,0 h
Edition : 29.04.88
Replaces : 5.6.87
Test oil : ISO-4113

Combination no. : 0 401 876 755

Injection pump
Pump designation : PE6P120A32ORS3187
EP type number : 0 411 826 757
Governor
Governor design. : RSV250..1100P1A523
Governor no. : 0 421 833 272

Customer-spec. information
Customer : VOLVO-PENTA

Engine : TD121G

1st version kW : 256.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.40...2.50
 : (2.35...2.55)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.50...12.60

Del. quantity cm³/ : 21.1...21.3

100 s: (20.8...21.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 4.7...4.9

Del. quantity cm³/ : 2.4...2.9

100 s: (2.2...3.2)

Spread cm³ : 0.5

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del. quantity : 211.5...213.5

1000 : (208.5...216.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

1st rack travel in: 11.50
Speed rpm : 1120...1130
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1330
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 4.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 250
Rack travel in mm : 4.70...4.90
Rack travel in mm : 2.00
Speed rpm : 295...355

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.50...12.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.10...11.30
2nd pressure hPa : 750
Rack travel in m: 12.30...12.40
3rd pressure hPa : 550
Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del. quantity cm³/ : 175.5...177.5
1000 s: (172.5...180.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1120...1130

STARTING FUEL DELIVERY

D02

Speed rpm : 100
Del. quantity cm³/ : 400.0...430.0
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.70...4.90
Del. quantity cm³/ : 24.5...29.5
1000 s: (22.0...32.0)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:

:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 k 5
 Edition : 08.06.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 765
 Injection pump
 Pump designation : PE6P110A32QLS3814-10
 EP type number : 0 411 816 741
 Governor
 Governor design. : RSV350...1150POA827
 Governor no. : 0 421 833 297

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM421

1st version kW : 159.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1130

Rack travel in mm : 12.10...12.20

Del. quantity cm³/ : 13.5...13.7

100 s: (13.2...13.9)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 350.0
 Rack travel in mm : 7.7...7.9
 Del. quantity cm³/ : 1.4...2.0
 100 s: (1.1...2.2)

Spread cm³ : 0.4
 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1130
 Del. quantity : 135.0...137.0
 1000 : (132.5...139.5)
 Spread cm³ : 4.00
 1000 : (8.00)

RATED SPEED

1st version
 Control lever
 position degrees: 47...53

Testing:
 1st rack travel in: 11.10
 Speed rpm : 1165...1175
 2nd rack travel in: 4.00
 Speed rpm : 1230...1260

4th rack travel in: 1400
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 24...32

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 7.8

Speed rpm : 350

Rack travel in mm : 7.70...7.90

Rack travel in mm : 2.00

Speed rpm : 430...490

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10

Speed rpm : 1165...1175

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 140.0...160.0

1000 s: (136.0...164.0)

Remarks:

: LIEBHERR

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 e11
Edition : 05.08.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 876 766

Injection pump
Pump designation : PE6P120A32QLS3810-10
EP type number : 0 411 826 734
Governor
Governor design. : RSV350...1150POA827-
1
Governor no. : 0 421 833 301

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM421A

1st version kW : 184.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

D05

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285
Tolerance + - ° : 0.50 (0.75)
Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1130

Rack travel in mm : 10.70...10.80

Del. quantity cm³/ : 15.8...16.0

100 s: (15.5...16.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0
Rack travel in mm : 4.9...5.1
Del. quantity cm³/ : 1.6...2.2
100 s: (1.3...2.5)
Spread cm³ : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1130
Del. quantity : 158.0...160.0
1000 : (155.0...163.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 50...58

Testing:
1st rack travel in: 9.70
Speed rpm : 1175...1185
2nd rack travel in: 4.00
Speed rpm : 1250...1270
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.0

Testing:
Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 350
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 400...460

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 1175...1185

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks:
: LIEBHERR

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,6 p 1
 Edition : 05.08.88
 Replaces : 11.12.87
 Test oil : ISO-4113

Combination no. : 0 401 878 703

Injection pump
 Pump designation : PE8P120A32OLS3816-10
 EP type number : 0 411 828 715
 Governor
 Governor design. : RSV650...1150POA823
 Governor no. : 0 421 833 166

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM422A

1st version kW : 206.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1180

 Rack travel in mm : 9.00...9.10

 Del. quantity cm³/ : 13.3...13.5

 100 s: (13.0...13.8)

 Spread cm³ : 0.5

 100 s: (0.9)

2nd speed rpm : 650.0
 Rack travel in mm : 3.4...3.6
 Del. quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1180
 Del. quantity : 133.0...135.0
 1000 : (130.0...138.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 42...50

Testing:

1st rack travel in: 8.00
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1235...1255
4th rack travel in: 1400
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 3.6
Speed rpm : 650
Rack travel in mm : 3.50...3.70
Rack travel in mm : 2.00
Speed rpm : 655...695

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1180
Rack travel in m: 9.00...9.10
2nd speed rpm : 975
Rack travel in m: 9.80...10.00
3rd speed rpm : 1075
Rack travel in m: 9.30...9.50
4th speed rpm : 700
Rack travel in m: 9.80...10.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 950
Del. quantity cm³/ : 145.0...149.0
1000 s: (142.0...152.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 8.00
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

Engine-speed difference between 1 mm
regulated and control-rod travel 4 mm =
25...35 1/min.

When adjusting and checking, adjust
speed regulation to 1210...1220 l/min.
Afterwards, readjust speed regulation
to 1160...1170 l/min.

Test specifications for version 1 apply
to injection-pump assemblies on engines
as of engine no. 422.901-410117069.

APPLICATION

Forage harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,6 t 1
Edition : 16.06.88
Replaces : 12.9.86
Test oil : ISO-4113

Combination no. : 0 401 878 706

Injection pump
Pump designation : PE8P110A32QLS3813-10
EP type number : 0 411 818 712
Governor
Governor design. : RSV350...750POA824-2
Governor no. : 0 421 833 228

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM422

1st version kW : 173.0
Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
Tolerance + - ° : 0.50 (0.75)
Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.10...13.20

Del. quantity cm³/ : 14.2...14.4

100 s: (13.9...14.6)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 350.0
Rack travel in mm : 7.2...7.5
Del. quantity cm³/ : 1.4...1.8
100 s: (1.1...2.0)
Spread cm³ : 0.4
100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.40

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Del. quantity : 142.0...144.0
1000 : (139.5...146.5)
Spread cm³ : 4.00
1000 : (8.00)

RATED SPEED

1st version
Control lever
position degrees: 26...34

Testing:

1st rack travel in: 12.10
Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 780...793
4th rack travel in: 1200
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 12...20
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.35

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 350
Rack travel in mm : 7.20...7.50

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1175...1185

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:

Observe VDT-I-420/120

0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,6 p 5
Edition : 01.07.88
Replaces : 19.5.88
Test oil : ISO-4113

Combination no. : 0 401 878 711

Injection pump
Pump designation : PE8P120A32OLS3816-10
EP type number : 0 411 828 715
Governor
Governor design. : RSV650...1150POA823-
S
Governor no. : 0 421 833 280

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM422A

1st version kW : 206.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1,50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
(3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5-
4- 1

Phasing : 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 9.30...9.40

Del. quantity cm³/ : 13.3...13.5

100 s: (13.0...13.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 650.0
Rack travel in mm : 3.3...3.6
Del. quantity cm³/ : 1.6...2.2
100 s: (1.3...2.5)
Spread cm³ : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1180
Del. quantity : 133.0...135.0
1000 : (130.0...138.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 42...50

Testing:

1st rack travel in: 8.30
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1235...1255
4th rack travel in: 1400
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 3.4
Speed rpm : 650
Rack travel in mm : 3.30...3.60
Rack travel in mm : 2.00
Speed rpm : 655...695

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1180
Rack travel in m: 9.30...9.40
2nd speed rpm : 950
Rack travel in m: 10.80...11.10
3rd speed rpm : 1050
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 950
Del. quantity cm³/ : 160.0...164.0
1000 s: (157.0...167.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.30
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 650

D12

Rack travel in mm : 3.30...3.60
Del. quantity cm³/ : 16.0...22.0
1000 s: (13.0...25.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Engine-speed difference between 1 mm regulated and control-rod travel 4 mm = 25...35 1/min.

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min.

APPLICATION

Forage harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 18,3 j
 Edition : 07.10.88
 Replaces : 12.9.86
 Test oil : ISO-4113

Combination no. : 0 401 879 701

Injection pump
 Pump designation : PE10P120A32QLS3831
 EP type number : 0 411 829 705
 Governor
 Governor design. : RSV350...750POA824-8
 Governor no. : 0 421 833 234

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 423 A

1st version kW : 249.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 130...150

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 10- 9- 4- 1- 8- 7
 - 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
 216-261-288-333
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.30...11.40

Del. quantity cm³/ : 17.3...17.5

100 s: (17.0...17.8)

Spread cm³ : 0.5

100 s: (0.8)

2nd speed rpm : 350.0
 Rack travel in mm : 4.8...5.0
 Del. quantity cm³/ : 1.4...2.0
 100 s: (1.1...2.3)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Governor spring pre-tension
 Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del. quantity : 173.0...175.0
 1000 : (170.0...178.0)
 Spread cm³ : 5.00
 1000 : (8.00)

RATED SPEED

1st version
 Control lever
 position degrees: 26...34

Testing:
 1st rack travel in: 10.30

Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 775...788
4th rack travel in: 900
Speed rpm : 0.30...1.50

LOW IDLE 1

Control lever
position degrees: 12...20
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.9
Speed rpm : 350
Rack travel in mm : 4.80...5.00

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 170.0...190.0
1000 s: (166.0...194.0)

Remarks:

:

Observe VDT-I-420/120
APPLICATION
Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 10,0 a
Edition : 05.08.88
Replaces : 7.1.88
Test oil : ISO-4113

Combination no. : 0 402 035 020

Injection pump
Pump designation : PESSP120A720/3LS512
EP type number : 0 412 025 021
Governor
Governor design. : RQ300/1100PA813-1
Governor no. : 0 421 801 405

Customer-spec. information
Customer : MAN

Engine : D286SLF

1st version kW : 191.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 10.70...10.80

Del. quantity cm³/ : 20.9...21.1

100 s: (20.6...21.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 3.9...4.1

Del. quantity cm³/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del. quantity : 209.0...211.0

1000 : (206.0...214.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.10

Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.0

Testing:

Speed rpm : 100
Minimum rack trave: 5.50
Speed rpm : 300
Rack travel in mm : 3.90...4.10
Rack travel in mm : 2.00
Speed rpm : 320...380

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.20...10.30
2nd speed rpm : 750
Rack travel in m: 11.00...11.20
3rd speed rpm : 920
Rack travel in m: 10.60...10.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 10.70...10.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 7.90...8.10
2nd pressure hPa : 125
Rack travel in m: 8.30...8.40
3rd pressure hPa : 430
Rack travel in m: 9.80...10.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1100

Del.quantity cm3/ : 198.0...202.0
1000 s: (195.0...205.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del.quantity cm3/ : 200.0...206.0
1000 s: (197.0...209.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 125.0...127.0
1000 s: (122.0...130.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.10
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 190.0...210.0
1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.90...4.10
Del.quantity cm3/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks: : MAN-NR. 2-7881

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 10,0 b
Edition : 05.08.88
Replaces : 7.1.88
Test oil : ISO-4113

Combination no. : 0 402 035 021

Injection pump
Pump designation : PES5P120A720/3LS512
EP type number : 0 412 025 021
Governor
Governor design. : RQV300...1100PA876
Governor no. : 0 421 813 661

Customer-spec. information
Customer : MAN

Engine : D286SLF

1st version kW : 191.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 10.70...10.80

Del. quantity cm³/ : 20.9...21.1

100 s: (20.6...21.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 3.9...4.1

Del. quantity cm³/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.70...2.00

2nd speed rpm : 850
travel mm : 6.00...6.20

3rd speed rpm : 1100
travel mm : 8.10...8.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del. quantity : 209.0...211.0

1000 : (206.0...214.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 49...57

Testing:

1st rack travel in: 9.20

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1215...1245

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 14...22

Testing:

Speed rpm : 100

Minimum rack travel: 5.50

Speed rpm : 300

Rack travel in mm : 3.90...4.10

CONSTANT REGULATION

Speed rpm : 310...410

TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

1st speed rpm : 750

Rack travel in m: 10.70...10.80

2nd speed rpm : 1100

Rack travel in m: 10.20...10.30

3rd speed rpm : 900

Rack travel in m: 10.60...10.70

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 1000

Rack travel mm : 10.70...10.80

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 7.90...8.10

2nd pressure hPa : 125

Rack travel in m: 8.30...8.40

3rd pressure hPa : 430

Rack travel in m: 9.80...10.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 1100

Del.quantity cm³/ : 199.0...201.0

1000 s: (196.0...204.0)

Aneroid pressure h: 1000

Speed rpm : 650

Del.quantity cm³/ : 200.0...206.0

1000 s: (197.0...209.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 125.0...127.0

1000 s: (122.0...130.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 190.0...210.0

1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 3.90...4.10

Del.quantity cm³/ : 12.0...18.0

1000 s: (9.0...21.0)

Spread cm³ : 8.00

1000 s: (12.00)

Remarks:

: MAN-NR. 2-7882

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a10
Edition : 30.09.88
Replaces : 10.85
Test oil : ISO-4113
Combination no. : 0 402 036 046
Injection pump
Pump designation : PES6P120A720/3LS470-3
EP type number : 0 412 026 051
Governor
Governor design. : RQ300...1100PA679-1
Governor no. : 0 421 801 333

Customer-spec. information
Customer : MAN

Engine : D2866LUL

1st version kW : 243.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.20...11.30

Del. quantity cm3/ : 20.0...20.2

100 s: (19.7...20.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.7...4.9

Del. quantity cm3/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del. quantity : 200.0...202.0

1000 : (197.0...205.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.20
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.8

Testing:

Speed rpm : 100
Minimum rack travel: 6.30
Speed rpm : 300
Rack travel in mm : 4.70...4.90
Rack travel in mm : 2.00
Speed rpm : 345...385

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 11.60...11.70
2nd speed rpm : 1100
Rack travel in m: 11.50...11.70

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.20...11.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.60...8.80
2nd pressure hPa : 210
Rack travel in m: 9.00...9.10
3rd pressure hPa : 480
Rack travel in m: 10.40...10.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1100
Del. quantity cm³/ : 210.0...214.0
1000 s: (207.0...217.0)

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 122.0...124.0
1000 s: (119.0...127.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 190.0...210.0
1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.70...4.90
Del. quantity cm³/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7587

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9 a9
Edition : 05.08.88
Replaces : 18.8.87
Test oil : ISO-4113

Combination no. : 0 402 036 047

Injection pump
Pump designation : PES6P120A720/3LS470-
3
EP type number : 0 412 026 051
Governor
Governor design. : RQ250/1100PA679
Governor no. : 0 421 801 228

Customer-spec. information

Customer : MAN

Engine : D2866KUL

1st version kW : 265.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

D21

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.60...12.70

Del. quantity cm³/ : 22.7...22.9

100 s: (22.4...23.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0
Rack travel in mm : 5.6...5.8
Del. quantity cm³/ : 1.2...1.8
100 s: (0.9...2.1)
Spread cm³ : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -2
Speed rpm : 600
Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 750
Aneroid pressure h: 1000
Del. quantity : 227.0...229.0
1000 : (224.0...232.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.30
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.7

Testing:

Speed rpm : 100
Minimum rack trave: 7.20
Speed rpm : 250
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00
Speed rpm : 330...370

TORQUE CONTROL

Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 13.40...13.50
2nd speed rpm : 1100
Rack travel in m: 12.30...12.40
3rd speed rpm : 965
Rack travel in m: 13.00...13.20
4th speed rpm : 1010
Rack travel in m: 12.70...13.00

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.60...12.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.70...8.90
2nd pressure hPa : 250
Rack travel in m: 9.00...9.10
3rd pressure hPa : 700
Rack travel in m: 11.20...11.60

START CUT-OUT

Speed 1/min : 190 (210)

FUEL DELIVERY CHARACTERISTICS

1st version

D22

Aneroid pressure h: 1000
Speed rpm : 1100
Del.quantity cm³/ : 228.0...232.0
1000 s: (225.0...235.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del.quantity cm³/ : 228.0...234.0
1000 s: (225.0...237.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 118.0...120.0
1000 s: (115.0...123.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 205.0...225.0
1000 s: (205.0...225.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7717

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a11
Edition : 05.08.88
Replaces : 11.3.88
Test oil : ISO-4113

Combination no. : 0 402 036 048

Injection pump
Pump designation : PES6P120A720/3LS470-
3

EP type number : 0 412 026 051
Governor
Governor design. : RQV250...1100PA707
Governor no. : 0 421 813 440

Customer-spec. information
Customer : MAN

Engine : D2866KUL

1st version kW : 265.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.60...12.70

Del. quantity cm³/ : 22.7...22.9

100 s: (22.4...23.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.4...5.6

Del. quantity cm³/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.10...1.30

2nd speed rpm : 450
travel mm : 3.00...3.40

3rd speed rpm : 850
travel mm : 5.10...5.50

4th speed rpm : 1100
travel mm : 7.20...7.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del. quantity : 227.0...229.0
1000 : (224.0...232.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 49...57

Testing:

1st rack travel in: 11.30
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1235...1265
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 15...23

Testing:

Speed rpm : 100
Minimum rack travel: 7.00
Speed rpm : 250
Rack travel in mm : 5.40...5.60

CONSTANT REGULATION

Speed rpm : 285...400

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.30...12.40
2nd speed rpm : 750
Rack travel in m: 12.60...12.70
3rd speed rpm : 1010
Rack travel in m: 12.40...12.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.60...12.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.70...8.90
2nd pressure hPa : 250
Rack travel in m: 9.00...9.10
3rd pressure hPa : 700

Rack travel in m: 11.20...11.60

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1100
Del. quantity cm³/ : 229.0...232.0
1000 s: (226.0...235.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del. quantity cm³/ : 228.0...234.0
1000 s: (225.0...237.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 118.0...120.0
1000 s: (115.0...123.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 205.0...225.0
1000 s: (205.0...225.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.40...5.60
Del. quantity cm³/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a36
Edition : 19.08.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 036 048

Injection pump
Pump designation : PES6P120A720/3LS470-
3
EP type number : 0 412 026 051
Governor
Governor design. : RQV300...1100PA707
Governor no. : 0 421 813 440

Customer-spec. information
Customer : MAN

Engine : D2866KUL

1st version kW : 265.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.60...12.70

Del. quantity cm³/ : 22.7...22.9

100 s: (22.4...23.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.0...5.2

Del. quantity cm³/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.70...1.90

2nd speed rpm : 450

travel mm : 3.00...3.40

3rd speed rpm : 850

travel mm : 5.60...6.00

4th speed rpm : 1100

travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del. quantity : 227.0...229.0
1000 : (224.0...232.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 49...57

Testing:
1st rack travel in: 11.30
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1235...1265
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 15...23

Testing:
Speed rpm : 100
Minimum rack travel: 6.60
Speed rpm : 300
Rack travel in mm : 5.00...5.20

CONSTANT REGULATION
Speed rpm : 290...400

TORQUE CONTROL
Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.30...12.40
2nd speed rpm : 750
Rack travel in m: 12.60...12.70
3rd speed rpm : 1010
Rack travel in m: 12.40...12.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.60...12.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.70...8.90
2nd pressure hPa : 250
Rack travel in m: 9.00...9.10
3rd pressure hPa : 700

Rack travel in m: 11.20...11.60

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1100
Del. quantity cm³/ : 229.0...232.0
1000 s: (226.0...235.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del. quantity cm³/ : 228.0...234.0
1000 s: (225.0...237.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 118.0...120.0
1000 s: (115.0...123.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.30
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 205.0...225.0
1000 s: (205.0...225.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.00...5.20
Del. quantity cm³/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks: : MAN-NR. 2-7718

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a25
Edition : 12.08.88
Replaces : 22.5.87
Test oil : ISO-4113

Combination no. : 0 402 036 050

Injection pump
Pump designation : PES6P120A720/3LS470-
2

EP type number : 0 412 026 050
Governor
Governor design. : RQ300...1100PA684-3
Governor no. : 0 421 801 356

Customer-spec. information
Customer : MAN

Engine : D2866KF/KH

1st version kW : 265.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.20...12.30

Del. quantity cm³/ : 22.8...23.0

100 s: (22.5...23.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.7...4.9

Del. quantity cm³/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del. quantity : 228.0...230.0

1000 : (225.0...233.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.20
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.8

Testing:

Speed rpm : 100
Minimum rack travel: 6.30
Speed rpm : 300
Rack travel in mm : 4.70...4.90
Rack travel in mm : 2.00
Speed rpm : 345...405

TORQUE CONTROL

Dimension a mm : 0.55
Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 12.50...12.70
2nd speed rpm : 1100
Rack travel in m: 11.20...11.30
3rd speed rpm : 935
Rack travel in m: 12.00...12.30
4th speed rpm : 990
Rack travel in m: 11.60...11.90

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.20...12.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.30...9.50
2nd pressure hPa : 120
Rack travel in m: 9.60...9.70
3rd pressure hPa : 400
Rack travel in m: 11.00...11.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

D28

Aneroid pressure h: 1000
Speed rpm : 1100
Del.quantity cm3/ : 210.0...214.0
1000 s: (207.0...217.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del.quantity cm3/ : 228.0...234.0
1000 s: (225.0...237.0)
Aneroid pressure h: 400
Speed rpm : 500
Del.quantity cm3/ : 188.0...200.0
1000 s: (185.0...203.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 139.0...141.0
1000 s: (136.0...144.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 225.0...245.0
1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm: 4.70...4.90
Del.quantity cm3/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7598

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a12
 Edition : 23.09.88
 Replaces : 10.85
 Test oil : ISO-4113

Combination no. : 0 402 036 053

Injection pump
 Pump designation : PES6P120A720/3LS470-
 3
 EP type number : 0 412 026 051
 Governor
 Governor design. : RQV300...1100PA707-1
 Governor no. : 0 421 813 516

Customer-spec. information
 Customer : MAN

Engine : D2866LUL

1st version kW : 243.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

E01

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.20...11.30

Del. quantity cm³/ : 20.0...20.2

100 s: (19.7...20.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.7...4.9

Del. quantity cm³/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.70...2.00

2nd speed rpm : 450
 travel mm : 2.90...3.50

3rd speed rpm : 850
 travel mm : 5.60...6.00

4th speed rpm : 1100
 travel mm : 8.70...8.90

5th speed rpm : 1450
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1140

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 750

Aneroid pressure h: 1000
Del. quantity : 200.0...202.0
1000 : (197.0...205.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 49...57

Testing:

1st rack travel in: 10.20
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1225...1255
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 14...22

Testing:

Speed rpm : 100
Minimum rack travel: 6.30
Speed rpm : 300
Rack travel in mm : 4.70...4.90

CONSTANT REGULATION

Speed rpm : 300...400

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.20...11.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.60...8.80
2nd pressure hPa : 210
Rack travel in m: 9.00...9.10
3rd pressure hPa : 480
Rack travel in m: 10.40...10.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1100
Del. quantity cm³/ : 210.0...214.0
1000 s: (207.0...217.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 122.0...124.0
1000 s: (119.0...127.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 10.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 190.0...210.0
1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.70...4.90
Del. quantity cm³/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7738

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a19
Edition : 07.12.87
Replaces : 12.9.86
Test oil : ISO-4113

Combination no. : 0 402 036 058

Injection pump
Pump designation : PES6P120A720/3LS470-
2

EP type number : 0 412 026 050
Governor
Governor design. : RQ300/1100PA684-1
Governor no. : 0 421 801 344

Customer-spec. information
Customer : MAN

Engine : D2866LF

1st version kW : 243.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

E03

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.10...11.20

Del. quantity cm³/ : 20.2...20.4

100 s : (19.9...20.7)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 300
Rack travel in mm : 4.70...4.90
Del. quantity cm³/ : 1.2...1.8
100 s : (0.9...2.1)
Spread cm³ : 9.8
100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -2
Speed rpm : 600
Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 750
Aneroid pressure h : 1000
Del. quantity : 202.0...204.0
1000 : (199.0...207.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in : 9.50

Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.8

Testing:

Speed rpm : 100
Minimum rack trave: 6.30
Speed rpm : 300
Rack travel in mm : 4.70...4.90
Rack travel in mm : 2.00
Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 11.90...12.20
2nd speed rpm : 1100
Rack travel in m: 10.60...10.80
3rd speed rpm : 875
Rack travel in m: 11.80...12.00
4th speed rpm : 950
Rack travel in m: 11.20...11.50

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.10...11.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.10
2nd pressure hPa : 85
Rack travel in m: 9.30...9.40
3rd pressure hPa : 280
Rack travel in m: 10.50...10.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

E04

Speed rpm : 1100
Del.quantity cm3/ : 203.0...207.0
1000 s: (200.0...210.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del.quantity cm3/ : 198.0...204.0
1000 s: (195.0...207.0)
Aneroid pressure h: 280
Speed rpm : 500
Del.quantity cm3/ : 184.0...196.0
1000 s: (181.0...199.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 132.0...134.0
1000 s: (129.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 225.0...245.0
1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.70...4.90
Del.quantity cm3/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7756

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a24
 Edition : 05.08.88
 Replaces : 11.3.88
 Test oil : ISO-4113

Combination no. : 0 402 036 062

Injection pump
 Pump designation : PES6P120A720/3LS470-
 2
 EP type number : 0 412 026 050
 Governor
 Governor design. : RQ300/1100PA813
 Governor no. : 0 421 801 358

Customer-spec. information
 Customer : MAN

Engine : D2866LF

1st version kW : 243.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

E05

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.10...11.20

Del. quantity cm³/ : 20.2...20.4
 100 s: (19.9...20.7)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 4.7...4.9
 Del. quantity cm³/ : 1.2...1.8
 100 s: (0.9...2.1)

Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 45
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 750
 Aneroid pressure h: 1000
 Del. quantity : 202.0...204.0
 1000 : (199.0...207.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.50
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.8

Testing:

Speed rpm : 100
Minimum rack travel: 6.30
Speed rpm : 300
Rack travel in mm : 4.70...4.90
Rack travel in mm : 2.00
Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.70...10.80
2nd speed rpm : 750
Rack travel in m: 11.90...12.20
3rd speed rpm : 900
Rack travel in m: 11.70...11.90
4th speed rpm : 975
Rack travel in m: 11.00...11.30

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.10...11.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.10
2nd pressure hPa : 85
Rack travel in m: 9.30...9.40
3rd pressure hPa : 280
Rack travel in m: 10.50...10.80

START CUT-OUT

Speed 1/min : 190 (210)

FUEL DELIVERY CHARACTERISTICS

1st version

E06

Aneroid pressure h: 1000
Speed rpm : 1100
Del.quantity cm³/ : 204.0...208.0
1000 s: (201.0...211.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del.quantity cm³/ : 203.0...209.0
1000 s: (200.0...212.0)
Aneroid pressure h: 280
Speed rpm : 500
Del.quantity cm³/ : 184.0...196.0
1000 s: (181.0...199.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 132.0...134.0
1000 s: (129.0...137.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 225.0...245.0
1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.70...4.90
Del.quantity cm³/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7823

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a29
 Edition : 21.10.88
 Replaces : 6.11.87
 Test oil : ISO-4113

Combination no. : 0 402 036 070

Injection pump
 Pump designation : PES6P120A720/3LS470-
 3
 EP type number : 0 412 026 051
 Governor
 Governor design. : RQV300...1100PA707-2
 Governor no. : 0 421 813 638

Customer-spec. information
 Customer : MAN

Engine : D2866LUL/290

1st version kW : 213.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

E07

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

 Rack travel in mm : 10.60...10.70

 Del. quantity cm³/ : 18.3...18.5

 100 s: (18.0...18.8)

Spread cm³ : 0.5

 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.4...5.6
 Del. quantity cm³/ : 1.2...1.8
 100 s: (0.9...2.1)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 300
 travel mm : 1.60...1.80
 2nd speed rpm : 475
 travel mm : 3.10...3.50
 3rd speed rpm : 850
 travel mm : 5.50...5.90
 4th speed rpm : 1100
 travel mm : 7.40...7.60

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1175
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 750
 Aneroid pressure h: 1000

Del. quantity : 183.0...185.0
1000 : (180.0...188.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:

1st rack travel in: 9.60
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1225...1255
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 15...23

Testing:

Speed rpm : 100
Minimum rack travel: 7.00
Speed rpm : 300
Rack travel in mm : 5.40...5.60

CONSTANT REGULATION

Speed rpm : 310...410

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 10.60...10.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.80...8.90
2nd pressure hPa : 210
Rack travel in m: 9.10...9.20
3rd pressure hPa : 375
Rack travel in m: 9.90...10.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

E08

Aneroid pressure h: 1000
Speed rpm : 1100
Del. quantity cm³/ : 192.0...198.0
1000 s: (189.0...201.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del. quantity cm³/ : 172.0...178.0
1000 s: (169.0...181.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 119.0...121.0
1000 s: (116.0...124.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 225.0...245.0
1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.40...5.60
Del. quantity cm³/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7879

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9 g8
Edition : 05.08.88
Replaces : 22.1.88
Test oil : ISO-4113

Combination no. : 0 402 036 072

Injection pump
Pump designation : PES6P110A720/3LS477-
2
EP type number : 0 412 016 071
Governor
Governor design. : RQ250/1100PA845-1
Governor no. : 0 421 801 423

Customer-spec. information
Customer : MAN

Engine : D2566 UH/205

1st version kW : 150.0

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 10.30...10.40

Del. quantity cm³/ : 9.1...9.4

100 s: (8.8...9.6)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.9...6.1

Del. quantity cm³/ : 1.5...2.0

100 s: (1.2...2.2)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Del. quantity : 91.0...94.0

1000 : (88.5...96.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.30

Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed rpm : 1205...1235

4th rack travel in: 1350

Speed rpm : 0.00...1.00

Spread cm³ : 4.50
1000 s: (7.50)

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.0

Remarks:

: MAN-NR. 2-7902

Testing:

Speed rpm : 100

Minimum rack travel: 7.50

Speed rpm : 250

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 315...355

APPLICATION

Omnibus

TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 800

Rack travel in m: 10.80...10.90

2nd speed rpm : 1100

Rack travel in m: 10.70...10.90

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1100

Del. quantity cm³/ : 103.0...107.0

1000 s: (100.0...110.0)

Speed rpm : 500

Del. quantity cm³/ : 81.0...85.0

1000 s: (78.0...88.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.30

Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 110.0...130.0

1000 s: (106.0...134.0)

LOW IDLE

Speed rpm : 250

Rack travel in mm : 5.90...6.10

Del. quantity cm³/ : 15.0...20.0

1000 s: (12.5...22.5)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a31
 Edition : 30.09.88
 Replaces : 18.12.87
 Test oil : ISO-4113

Combination no. : 0 402 036 073

Injection pump
 Pump designation : PES6P120A720/3LS470-
 2
 EP type number : 0 412 026 050
 Governor
 Governor design. : RQ300/1100PA813-4
 Governor no. : 0 421 801 425

Customer-spec. information
 Customer : MAN

Engine : D2866KUH

1st version kW : 265.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

 Rack travel in mm : 12.50...12.60

 Del. quantity cm³/ : 23.8...24.0

 100 s: (23.5...24.3)

 Spread cm³ : 0.5

 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 4.9...5.1
 Del. quantity cm³/ : 1.2...1.8
 100 s: (0.9...2.1)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 750
 Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 750
 Aneroid pressure h: 1000
 Del. quantity : 238.0...240.0
 1000 : (235.0...243.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 750
 Rack travel in mm : 15.5

Testing:

1st rack travel in: 10.50
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 300
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 400...440

TORQUE CONTROL

Dimension a mm : 0.35
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.50...11.60
2nd speed rpm : 750
Rack travel in m: 12.60...12.80
3rd speed rpm : 880
Rack travel in m: 12.30...12.50
4th speed rpm : 925
Rack travel in m: 11.70...12.00

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.50...12.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.50...8.70
2nd pressure hPa : 190
Rack travel in m: 8.90...9.00
3rd pressure hPa : 520
Rack travel in m: 11.10...11.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

E12

Aneroid pressure h: 1000
Speed rpm : 1100
Del.quantity cm³/ : 218.0...222.0
1000 s: (215.0...225.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del.quantity cm³/ : 238.0...244.0
1000 s: (235.0...247.0)
Aneroid pressure h: 520
Speed rpm : 500
Del.quantity cm³/ : 191.0...197.0
1000 s: (188.0...200.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 119.0...121.0
1000 s: (116.0...124.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 225.0...245.0
1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.90...5.10
Del.quantity cm³/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7904

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a34
Edition : 30.09.88
Replaces : 6.4.88
Test oil : ISO-4113

Combination no. : 0 402 036 075

Injection pump
Pump designation : PES6P120A720/3LS470-
2
EP type number : 0 412 026 050
Governor
Governor design. : RQ300/1100PA813-5
Governor no. : 0 421 801 434

Customer-spec. information
Customer : MAN

Engine : D2866TUH

1st version kW : 213.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 10.80...10.90

Del. quantity cm³/ : 18.5...18.7

100 s : (18.2...19.0)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.2...5.4

Del. quantity cm³/ : 1.2...1.8

100 s : (0.9...2.1)

Spread cm³ : 0.8

100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 750

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h : 1000

Del. quantity : 185.0...187.0

1000 : (182.0...190.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 750

Rack travel in mm : 15.5

Testing:

1st rack travel in: 9.80
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 6.80
Speed rpm : 300
Rack travel in mm : 5.20...5.40
Rack travel in mm : 2.00
Speed rpm : 390...430

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.00...11.10
2nd speed rpm : 750
Rack travel in m: 11.00...11.20

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 10.80...10.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.50...8.70
2nd pressure hPa : 190
Rack travel in m: 8.80...8.90
3rd pressure hPa : 350
Rack travel in m: 9.80...10.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1100
Del.quantity cm³/ : 190.0...196.0
1000 s: (187.0...199.0)

Aneroid pressure h: 350
Speed rpm : 500
Del.quantity cm³/ : 164.0...176.0
1000 s: (161.0...179.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 119.0...121.0
1000 s: (116.0...124.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 205.0...225.0
1000 s: (201.0...229.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.20...5.40
Del.quantity cm³/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7892

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a35
Edition : 11.07.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 036 076
Injection pump
Pump designation : PES6P120A720/3LS470-
4
EP type number : 0 412 026 055
Governor
Governor design. : RQV300...1100PA700-5
Governor no. : 0 421 813 713

Customer-spec. information
Customer : MAN

Engine : D2866LFG

1st version kW : 243.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.30...11.40

Del. quantity cm³/ : 20.2...20.4

100 s: (19.9...20.7)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.7...4.9

Del. quantity cm³/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.50...1.90

2nd speed rpm : 450

travel mm : 2.90...3.50

3rd speed rpm : 850

travel mm : 5.50...5.90

4th speed rpm : 1100

travel mm : 7.40...7.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1125

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del. quantity : 202.0...204.0
1000 : (199.0...207.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:

1st rack travel in: 9.50
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 14...22

Testing:

Speed rpm : 100
Minimum rack travel: 6.30
Speed rpm : 300
Rack travel in mm : 4.70...4.90

CONSTANT REGULATION

Speed rpm : 310...410

TORQUE CONTROL

Dimension a mm : 0.80
Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 11.30...11.40
2nd speed rpm : 1100
Rack travel in m: 10.50...10.60
3rd speed rpm : 850
Rack travel in m: 11.00...11.20
4th speed rpm : 975
Rack travel in m: 10.70...11.00

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.30...11.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.10
2nd pressure hPa : 85

Rack travel in m: 9.30...9.40
3rd pressure hPa : 280
Rack travel in m: 10.50...10.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1100
Del. quantity cm³/ : 204.0...206.0
1000 s: (201.0...209.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del. quantity cm³/ : 208.0...214.0
1000 s: (205.0...217.0)
Aneroid pressure h: 280
Speed rpm : 500
Del. quantity cm³/ : 184.0...196.0
1000 s: (181.0...199.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 132.0...134.0
1000 s: (129.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 9.50
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 225.0...245.0
1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.70...4.90
Del. quantity cm³/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9 j
 Edition : 04.11.88
 Replaces : 16.5.88
 Test oil : ISO-4113
 Combination no. : 0 402 036 726
 Injection pump
 Pump designation : PES6P120A720LS3205
 EP type number : 0 412 026 729
 Governor
 Governor design. : RQ300/1100PA813-2
 Governor no. : 0 421 801 416

Customer-spec. information
 Customer : MAN

Engine : D2866LX
 1st version kW : 265.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 019
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar : 25...27

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

 Rack travel in mm : 13.00...13.10

 Del. quantity cm³/ : 23.4...23.6

 100 s : (23.1...23.9)

 Spread cm³ : 0.5

 100 s : (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 4.1...4.3
 Del. quantity cm³/ : 1.7...2.3
 100 s : (1.4...2.6)
 Spread cm³ : 0.8
 100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 650
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h : 1200
 Del. quantity : 234.0...236.0
 1000 : (231.0...239.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 650
 Rack travel in mm : 20.0

Testing:
 1st rack travel in : 11.80

Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.2

Testing:

Speed rpm : 100
Minimum rack travel: 5.70
Speed rpm : 300
Rack travel in mm : 4.10...4.30
Rack travel in mm : 2.00
Speed rpm : 345...385

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 13.10...13.20
2nd speed rpm : 700
Rack travel in m: 13.70...13.90

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.00...13.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.50...9.70
2nd pressure hPa : 110
Rack travel in m: 9.80...10.00
3rd pressure hPa : 470
Rack travel in m: 11.60...12.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1100
Del. quantity cm³/ : 226.0...232.0
1000 s: (223.0...235.0)
Aneroid pressure h: -

Speed rpm : 500
Del. quantity cm³/ : 134.0...136.0
1000 s: (131.0...139.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.80
Speed rpm : 1145...1160

INTERMEDIATE RATED SPEED
Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 190.0...210.0
1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.10...4.30
Del. quantity cm³/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks: : MAN-NR. 2-7889

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9 k
Edition : 04.11.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 036 727

Injection pump
Pump designation : PES6P120A720LS3205
EP type number : 0 412 026 729
Governor
Governor design. : RQV300...1100PA876-1
Governor no. : 0 421 813 670

Customer-spec. information

Customer : MAN

Engine : D2866LX

1st version kW : 265.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.00...13.10

Del. quantity cm³/ : 23.4...23.6

100 s : (23.1...23.9)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 4.1...4.3
Del. quantity cm³/ : 1.7...2.3
100 s : (1.4...2.6)
Spread cm³ : 0.8
100 s : (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.10...1.30
2nd speed rpm : 450
travel mm : 3.10...3.50
3rd speed rpm : 900
travel mm : 6.00...6.40
4th speed rpm : 1100
travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position
Degree : -1
Speed rpm : 1175
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Aneroid pressure h : 1200
Del. quantity : 234.0...236.0
1000 : (231.0...239.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 50...58

Testing:
1st rack travel in: 11.80
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1250...1280
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 13...21

Testing:
Speed rpm : 100
Minimum rack travel: 5.70
Speed rpm : 300
Rack travel in mm : 4.10...4.30

CONSTANT REGULATION

Speed rpm : 300...400

TORQUE CONTROL

Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.80...12.90
2nd speed rpm : 700
Rack travel in m: 13.00...13.10
3rd speed rpm : 1000
Rack travel in m: 12.90...13.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.00...13.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.50...9.70
2nd pressure hPa : 110
Rack travel in m: 9.80...10.00
3rd pressure hPa : 470
Rack travel in m: 11.60...12.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1100
Del. quantity cm³/ : 226.0...232.0
1000 s: (223.0...235.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 134.0...136.0
1000 s: (131.0...139.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80
Speed rpm : 1140...1150

INTERMEDIATE RATED SPEED

Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 190.0...210.0
1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.10...4.30
Del. quantity cm³/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7890

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9 k1
Edition : 30.09.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 036 728
Injection pump
Pump designation : PES6P120A720LS3205-1
EP type number : 0 412 026 732
Governor
Governor design. : RQV300...1100PA876-2
Governor no. : 0 421 813 712

Customer-spec. information
Customer : MAN

Engine : D2866LXG

1st version kW : 265.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.80...12.90

Del. quantity cm³/ : 22.8...23.0

100 s : (22.5...23.3)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.1...4.3

Del. quantity cm³/ : 1.7...2.3

100 s : (1.4...2.6)

Spread cm³ : 0.8

100 s : (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.60...2.00

2nd speed rpm : 450

travel mm : 2.80...3.20

3rd speed rpm : 800

travel mm : 5.30...5.70

4th speed rpm : 1100

travel mm : 8.00...8.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1120

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1000

Del. quantity : 228.0...230.0

1000 : (225.0...233.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 51...59

Testing:

1st rack travel in: 11.80
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 13...21

Testing:

Speed rpm : 100
Minimum rack trave: 5.70
Speed rpm : 300
Rack travel inmm : 4.10...4.30

CONSTANT REGULATION

Speed rpm : 300...400

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.70...9.90
2nd pressure hPa : 150
Rack travel in m: 10.10...10.20
3rd pressure hPa : 510
Rack travel in m: 11.60...12.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1100

E22

Del.quantity cm³/ : 226.0...232.0
1000 s: (223.0...235.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 134.0...136.0
1000 s: (131.0...139.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.80
Speed rpm : 1140...1150

INTERMEDIATE RATED SPEED

Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 210.0...230.0
1000 s: (206.0...234.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.10...4.30
Del.quantity cm³/ : 17.0...25.0
1000 s: (14.0...26.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 l
Edition : 04.11.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 045 700

Injection pump
Pump designation : PESSP110A820LS3218
EP type number : 0 412 015 700
Governor
Governor design. : RQ300/1100PA327-10
Governor no. : 0 421 801 457

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM449

1st version kW : 147.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40
: (4.25...4.45)
Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.20...11.30

Del. quantity cm³/ : 14.4...14.6

100 s: (14.1...14.8)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 6.8...7.2

Del. quantity cm³/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 144.0...146.0

1000 : (141.5...148.5)

Spread cm³ : 4.00

1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.5

Testing:

1st rack travel in: 10.20

Speed rpm : 1140...1150

2nd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1250
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.0

Testing:

Speed rpm : 200
Minimum rack travel: 9.00
Speed rpm : 300
Rack travel in mm : 6.80...7.20
Rack travel in mm : 2.00
Speed rpm : 360...400

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del. quantity cm³/ : 121.0...125.0
1000 s: (118.0...128.0)
Spread cm³ : 5.00
1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 170.0...190.0
1000 s: (166.0...194.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 l 1
Edition : 04.11.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 045 701
Injection pump
Pump designation : PESSP110A82QLS3218
EP type number : 0 412 015 700
Governor
Governor design. : RQ300/1100PA327-11
Governor no. : 0 421 801 458

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM449

1st version kW : 140.0

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40
 : (4.25...4.45)
Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.40...10.50

Del. quantity cm³/ : 13.5...13.7

100 s: (13.2...13.9)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 6.8...7.2

Del. quantity cm³/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 135.0...137.0

1000 : (132.5...139.5)

Spread cm³ : 4.00

1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.5

Testing:

1st rack travel in: 9.50

Speed rpm : 1140...1150

2nd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1250
Speed rpm : 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.0

Testing:
Speed rpm : 200
Minimum rack trave: 9.00
Speed rpm : 300
Rack travel in mm : 6.80...7.20
Rack travel in mm : 2.00
Speed rpm : 360...400

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm3/ : 110.0...114.0
1000 s: (107.0...117.0)
Spread cm3 : 5.00
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.50
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a32
Edition : 30.09.88
Replaces : 18.12.87
Test oil : ISO-4113

Combination no. : 0 402 046 316

Injection pump
Pump designation : PES6P120A72QLS470
EP type number : 0 412 026 046
Governor
Governor design. : RQ250/1100PA658-11
Governor no. : 0 421 801 295

Customer-spec. information
Customer : MAN

Engine : D2866KF

1st version kW : 265.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.50...12.60

Del. quantity cm³/ : 23.8...24.0

100 s : (23.5...24.3)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.2...5.4

Del. quantity cm³/ : 1.2...1.8

100 s : (0.9...2.1)

Spread cm³ : 0.8

100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h : 1000

Del. quantity : 238.0...240.0

1000 : (235.0...243.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.30

Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 6.80
Speed rpm : 250
Rack travel in mm : 5.20...5.40
Rack travel in mm : 2.00
Speed rpm : 315...355

TORQUE CONTROL

Dimension a mm : 0.55
Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 12.70...12.80
2nd speed rpm : 1100
Rack travel in m: 11.30...11.40
3rd speed rpm : 915
Rack travel in m: 12.30...12.50
4th speed rpm : 975
Rack travel in m: 11.60...11.90

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.50...12.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.30...9.50
2nd pressure hPa : 400
Rack travel in m: 11.10...11.20
3rd pressure hPa : 110
Rack travel in m: 9.40...9.70

START CUT-OUT

Speed 1/min : 190 (210)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

E28

Speed rpm : 1100
Del.quantity cm3/ : 214.0...218.0
1000 s: (211.0...221.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del.quantity cm3/ : 239.0...245.0
1000 s: (236.0...248.0)
Aneroid pressure h: 400
Speed rpm : 500
Del.quantity cm3/ : 188.0...200.0
1000 s: (185.0...203.0)
Speed rpm : 500
Del.quantity cm3/ : 139.0...141.0
1000 s: (136.0...144.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.30
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 225.0...245.0
1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.20...5.40
Del.quantity cm3/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7599

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 9,8 a 7
Edition : 05.08.88
Replaces : 19.5.88
Test oil : ISO-4113
Combination no. : 0 402 046 330
Injection pump
Pump designation : PES6P120A32ORS419-2
EP type number : 0 412 026 048
Governor
Governor design. : RQ275/1050PA844
Governor no. : 0 421 801 379

Customer-spec. information
Customer : RVI

Engine : MIPS062045B

1st version kW : 176.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10.00...11.00

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 9.20...9.30

Del. quantity cm3/ : 16.1...16.3

100 s: (15.8...16.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 4.9...5.1

Del. quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 700

Del. quantity : 161.0...163.0

1000 : (158.0...166.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:
1st rack travel in: 8.20
Speed rpm : 1105...1120
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 3.4

Testing:
Speed rpm : 200
Minimum rack travel: 5.50
Speed rpm : 275
Rack travel in mm : 3.50...3.70
Rack travel in mm : 2.00
Speed rpm : 310...350

TORQUE CONTROL
Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 9.70...9.80
2nd speed rpm : 700
Rack travel in m: 9.70...9.90

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.20...8.30
2nd pressure hPa : 260
Rack travel in m: 8.90...9.00
3rd pressure hPa : 230
Rack travel in m: 8.40...8.60

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 700
Del. quantity cm³/ : 149.0...155.0
1000 s: (146.0...158.0)

F02

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 103.0...105.0
1000 s: (100.0...108.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.20
Speed rpm : 1105...1120

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 3.50...3.70

Remarks:

Start-of-delivery mark 9.5° cam angle
after start of delivery cyl. 1

APPLICATION
Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 9,8 a 8
Edition : 05.08.88
Replaces : 19.5.88
Test oil : ISO-4113

Combination no. : 0 402 046 332

Injection pump
Pump designation : PES6P120A32ORS419
EP type number : 0 412 026 037
Governor
Governor design. : RQ275/1050PA844-1
Governor no. : 0 421 801 421

Customer-spec. information

Customer : RVI

Engine : MIPRO62045A

1st version kW : 210.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 10.10...10.20

Del. quantity cm³/ : 18.5...18.7

100 s : (18.2...19.0)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 4.60...4.80

Del. quantity cm³/ : 1.5...2.1

100 s : (1.2...2.4)

Spread cm³ : 0.8

100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 700

Del. quantity : 185.0...187.0

1000 : (182.0...190.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.10

Speed rpm : 1110...1120

2nd rack travel in: 4.00

Speed rpm : 1185...1215
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 4.20

Testing:

Speed rpm : 200
Minimum rack trave: 5.90
Speed rpm : 275
Rack travel in mm : 4.10...4.30
Rack travel in mm : 2.00
Speed rpm : 310...350

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 10.10...10.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.00...8.20
2nd pressure hPa : 360
Rack travel in m: 9.60...9.70
3rd pressure hPa : 160
Rack travel in m: 8.60...8.80

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 650
Del. quantity cm³/ : 168.0...174.0
1000 s: (165.0...177.0)

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 105.0...107.0
1000 s: (102.0...110.0)

BREAKAWAY

1st version
1mm rack travel less than

F04

full load rack tr: 9.10
Speed rpm : 1110...1120

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.10...4.30

Remarks:

:

Start-of-delivery mark 9.5° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 9,8 d
Edition : 30.09.88
Replaces : 7.3.88
Test oil : ISO-4113

Combination no. : 0 402 046 333

Injection pump
Pump designation : PES6P120A32ORS514
EP type number : 0 412 026 052
Governor
Governor design. : RQV375...900PA885
Governor no. : 0 421 813 689

Customer-spec. information
Customer : RVI

Engine : MIDRO62045

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

F05

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.70...12.80

Del. quantity cm³/ : 20.6...20.8

100 s: (20.3...21.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 375.0

Rack travel in mm : 5.3...5.5

Del. quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.00...1.20

2nd speed rpm : 500

travel mm : 3.00...3.40

3rd speed rpm : 750

travel mm : 5.90...6.30

4th speed rpm : 900

travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 930

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del. quantity : 206.0...208.0

1000 : (203.0...211.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 62...70

Testing:

1st rack travel in: 11.70
Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 1015...1045
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20

Testing:

Speed rpm : 100
Minimum rack trave: 6.90
Speed rpm : 375
Rack travel in mm : 5.50...5.50

CONSTANT REGULATION

Speed rpm : 420...590

START CUT-OUT

Speed 1/min : 295 (315)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: -1.00
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 375
Rack travel in mm : -7.20...-7.40
Del. quantity cm³/ : 14.0...20.0
1000 s: (11.0...23.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: BAUDOUIN

APPLICATION

Navy

F06

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 m
 Edition : 05.08.88
 Replaces : 19.5.88
 Test oil : ISO-4113

Combination no. : 0 402 046 334

Injection pump
 Pump designation : PES6P120A32ORS515
 EP type number : 0 412 026 053
 Governor
 Governor design. : RQV300...1150PA527K
 Governor no. : 0 421 815 164

Customer-spec. information
 Customer : RVI

Engine : MIDR 062030B

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00

F07

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 10.20...10.30

Del. quantity cm³/ : 14.3...14.5

100 s: (14.0...14.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 600.0

Rack travel in mm : 4.6...4.8

Del. quantity cm³/ : 1.8...2.4

100 s: (1.5...2.7)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.70...2.10

2nd speed rpm : 900

travel mm : 5.80...6.20

3rd speed rpm : 1150

travel mm : 7.40...7.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1225

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del. quantity : 143.0...145.0

1000 : (140.0...148.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 57...65

Testing:

1st rack travel in: 9.20
Speed rpm : 1235...1245
2nd rack travel in: 4.00
Speed rpm : 1305...1335
4th rack travel in: 1.450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 6...14

Testing:

Speed rpm : 200
Minimum rack travel: 6.50
Speed rpm : 300
Rack travel in mm : 4.70...4.90

CONSTANT REGULATION

Speed rpm : 320...440

TORQUE CONTROL

Dimension a mm : 1.80
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 10.20...10.30
2nd speed rpm : 750
Rack travel in m: 9.20...9.30
3rd speed rpm : 500
Rack travel in m: 8.60...8.80
4th speed rpm : 350
Rack travel in m: 8.40...8.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 120.0...126.0
1000 s: (117.0...129.0)
Speed rpm : 500
Del. quantity cm³/ : 67.0...73.0
1000 s: (64.0...76.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 1235...1245

STARTING FUEL DELIVERY

F08

Speed rpm : 100
Del. quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.70...4.90
Del. quantity cm³/ : 13.0...19.0
1000 s: (10.0...22.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

Start-of-delivery mark 10.5° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9 I
Edition : 26.08.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 046 336

Injection pump
Pump designation : PES6P12QA72ORS517
EP type number : 0 412 026 054
Governor
Governor design. : RQ750PA895
Governor no. : 0 421 801 447

Customer-spec. information
Customer : MAN

Engine : D2866TUE

1st version kW : 190.0
Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.80...11.90

Del. quantity cm³/ : 21.0...21.2

100 s: (20.7...21.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 400.0
Rack travel in mm : 4.4...4.6
Del. quantity cm³/ : 1.2...1.8
100 s: (0.9...2.1)

Spread cm³ : 0.8
100 s: (1.2)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Del. quantity : 210.0...212.0
1000 : (207.0...215.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Testing:
1st rack travel in: 10.80
Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 788...796
4th rack travel in: 900
Speed rpm : 0.00...1.00

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 170.0...190.0
1000 s: (166.0...194.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 9,6 u
 Edition : 18.10.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 046 783
 Injection pump
 Pump designation : PES6P110A72ORS3104
 EP type number : 0 412 016 712
 Governor
 Governor design. : RQV300...1150PA850
 Governor no. : 0 421 813 598

Customer-spec. information
 Customer : KHD

Engine : BF6LS13R

1st version kW : 177.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.40...13.50

Del. quantity cm³/ : 15.1...15.3

100 s: (14.8...15.6)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.9...8.1

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm³ : 0.4

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.30...1.40

2nd speed rpm : 390
 travel mm : 2.40...2.70

3rd speed rpm : 460
 travel mm : 2.80...3.20

4th speed rpm : 1190
 travel mm : 8.40...8.50

5th speed rpm : 1290
 travel mm : 9.40...9.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1190

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 900

Del. quantity : 151.0...153.0

1000 : (148.0...156.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 51...59

Testing:

1st rack travel in: 12.40

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1310...1340

4th rack travel in: 1400

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 17...25

Testing:

Speed rpm : 100

Minimum rack travel: 9.40

Speed rpm : 300

Rack travel in mm : 7.90...8.10

CONSTANT REGULATION

Speed rpm : 320...480

TORQUE CONTROL

Dimension a mm : 0.10

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 13.40...13.50

2nd speed rpm : 600

Rack travel in m: 13.50...13.70

3rd speed rpm : 950

Rack travel in m: 13.45...13.60

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 450

Pressure hPa : 900

Rack travel mm : 13.60...13.70

Measurement

Speed 1/min : 450

1st pressure hPa : -

Rack travel in m: 12.40...12.60

2nd pressure hPa : 420

Rack travel in m: 13.20...13.30

3rd pressure hPa : 360

Rack travel in m: 12.70...12.90

START CUT-OUT

Speed 1/min : 250 (270)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 600

Del. quantity cm³/ : 156.0...160.0

1000 s: (154.0...162.0)

Aneroid pressure h: -

Speed rpm : 450

Del. quantity cm³/ : 123.0...125.0

1000 s: (120.0...128.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 170.0...200.0

1000 s: (166.0...204.0)

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 9,5 c
 Edition : 08.06.88
 Replaces : 11.3.88
 Test oil : ISO-4113

Combination no. : 0 402 046 790

Injection pump
 Pump designation : PES6P110A72ORS3140
 EP type number : 0 412 016 716
 Governor
 Governor design. : RQ310/1025PA872
 Governor no. : 0 421 801 413

Customer-spec. information
 Customer : IVECO-UNIC

Engine : 8460.21.611

1st version kW : 162.0
 Rated speed : 2050

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)
 Rack travel in mm : 9.00...12.00

F13

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1025

Rack travel in mm : 12.00...12.10

Del. quantity cm³/ : 14.6...14.9

100 s : (14.3...15.1)

Spread cm³ : 0.4

100 s : (0.7)

2nd speed rpm : 310.0

Rack travel in mm : 7.1...7.3

Del. quantity cm³/ : 1.8...2.3

100 s : (1.5...2.5)

Spread cm³ : 0.4

100 s : (0.7)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 108

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1025

Aneroid pressure h : 700

Del. quantity : 146.0...149.0

1000 : (143.5...151.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in : 11.00

Speed rpm : 1070...1085

2nd rack travel in : 4.00

Speed rpm : 1135...1165

4th rack travel in : 1300

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 310

Rack travel in mm : 7.2

Testing:

Speed rpm : 100

Minimum rack travel: 8.70

Speed rpm : 310

Rack travel in mm : 7.10...7.30

Rack travel in mm : 2.00

Speed rpm : 380...420

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 700

Rack travel mm : 12.00...12.10

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.30...10.40

2nd pressure hPa : 235

Rack travel in m: 11.40...11.50

3rd pressure hPa : 200

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500

Del. quantity cm³/ : 108.0...111.0

1000 s: (105.5...113.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

Speed rpm : 1070...1085

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 120.0...140.0

1000 s: (116.0...144.0)

Remarks:

F14

:
Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 9,6 v 1
Edition : 01.07.88
Replaces : 29.1.88
Test oil : ISO-4113

Combination no. : 0 402 046 794

Injection pump
Pump designation : PES6P110A72ORS3104
EP type number : 0 412 016 712
Governor
Governor design. : RQV300...107SPA862-1
Governor no. : 0 421 813 684

Customer-spec. information
Customer : KHD

Engine : BF6LS13 R/C

1st version kW : 150.0
Rated speed : 2150

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1075

Rack travel in mm : 12.40...12.50

Del. quantity cm³/ : 13.1...13.3

100 s : (12.8...13.6)

Spread cm³ : 0.4

100 s : (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.6...7.8

Del. quantity cm³/ : 1.6...2.2

100 s : (1.3...2.4)

Spread cm³ : 0.4

100 s : (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.10...1.50

2nd speed rpm : 450
travel mm : 2.60...3.20

3rd speed rpm : 700
travel mm : 4.80...5.40

4th speed rpm : 1110
travel mm : 7.90...8.10

5th speed rpm : 1230
travel mm : 9.00...9.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1140

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1075

Del. quantity : 131.0...133.0

1000 : (128.0...136.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 49...57

Testing:
1st rack travel in: 11.40
Speed rpm : 1110...1120
2nd rack travel in: 4.00
Speed rpm : 1220...1250
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 16...24

Testing:
Speed rpm : 100
Minimum rack travel: 9.10
Speed rpm : 300
Rack travel in mm : 7.60...7.80

CONSTANT REGULATION
Speed rpm : 300...480

TORQUE CONTROL
Dimension a mm : -

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del. quantity cm³/ : 133.0...139.0
1000 s: (130.0...142.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.40
Speed rpm : 1110...1120

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 170.0...200.0
1000 s: (166.0...204.0)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 9,5 d
 Edition : 05.08.88
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 046 796

Injection pump
 Pump designation : PES6P110A72ORS3140
 EP type number : 0 412 016 716
 Governor
 Governor design. : RQV275...1150PA501-5
 Governor no. : 0 421 813 694

Customer-spec. information
 Customer : IVECO-UNIC

Engine : 8460.21.010

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 11.10...11.20

Del. quantity cm³/ : 13.8...14.1

100 s : (13.5...14.3)

Spread cm³ : 0.4

100 s : (0.7)

2nd speed rpm : 275.0

Rack travel in mm : 6.8...7.0

Del. quantity cm³/ : 2.2...2.7

100 s : (1.9...2.9)

Spread cm³ : 0.4

100 s : (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 0.90...1.10

2nd speed rpm : 400

travel mm : 2.50...2.90

3rd speed rpm : 850

travel mm : 4.90...5.30

4th speed rpm : 1150

travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1240

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h : 700

Del. quantity : 138.0...141.0

1000 : (135.5...143.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 10.10
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1275...1305
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 6.9

Testing:

Speed rpm : 100
Minimum rack travel: 8.40
Speed rpm : 275
Rack travel in mm : 6.80...7.00

CONSTANT REGULATION

Speed rpm : 275...520

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.10...11.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.10
2nd pressure hPa : 240
Rack travel in m: 10.80...10.90
3rd pressure hPa : 210
Rack travel in m: 10.20...10.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm3/ : 105.0...108.0
1000 s: (102.5...110.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 10.10
Speed rpm : 1190...1200

F18

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 9,8 f
Edition : 30.09.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 046 798

Injection pump
Pump designation : PES6P120A32ORS3139
EP type number : 0 412 026 718
Governor
Governor design. : RQ275/1050PA893
Governor no. : 0 421 813 657

Customer-spec. information

Customer : RVI

Engine : MIDR 062045 M

1st version kW : 236,0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.50...11.60

Del. quantity cm³/ : 21.0...21.2
100 s : (20.7...21.5)

Spread cm³ : 0.5
100 s : (0.9)

2nd speed rpm : 275.0
Rack travel in mm : 5.20...5.40
Del. quantity cm³/ : 2.3...2.9
100 s : (2.0...3.2)
Spread cm³ : 0.8
100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -2
Speed rpm : 600
Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Aneroid pressure h: 1000
Del. quantity : 210.0...212.0
1000 : (207.0...215.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.50
Speed rpm : 1115...1130
2nd rack travel in: 4.00

Speed rpm : 1205...1235
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 5.3

Testing:

Speed rpm : 200
Minimum rack travel: 7.00
Speed rpm : 275
Rack travel in mm : 5.20...5.40
Rack travel in mm : 2.00
Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 600
Rack travel in m: 11.50...11.60
2nd speed rpm : 1050
Rack travel in m: 11.30...11.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.3...8.50
2nd pressure hPa : 400
Rack travel in m: 11.00...11.10
3rd pressure hPa : 160
Rack travel in m: 8.90...9.10

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 600
Del. quantity cm³/ : 208.0...214.0
1000 s: (205.0...217.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 96.0...98.0
1000 s: (93.0...101.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1115...1130

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.20...5.40
Del. quantity cm³/ : 23.0...29.0
1000 s: (20.0...32.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 9,6 u 1
 Edition : 05.08.88
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 046 799

Injection pump
 Pump designation : PES6P110A72ORS3104
 EP type number : 0 412 016 712
 Governor
 Governor design. : RQV300...107SPA850-1
 Governor no. : 0 421 813 708

Customer-spec. information
 Customer : KHD

Engine : BF6L413FR/513R

1st version kW : 193.0
 Rated speed : 2150

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

F21

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1075

Rack travel in mm : 13.40...13.50

Del. quantity cm³/ : 14.5...14.7

100 s : (14.2...15.0)

Spread cm³ : 0.4

100 s : (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 8.0...8.2

Del. quantity cm³/ : 1.6...2.1

100 s : (1.4...2.4)

Spread cm³ : 0.4

100 s : (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.20...1.40

2nd speed rpm : 400
 travel mm : 2.70...3.30

3rd speed rpm : 600
 travel mm : 4.20...4.80

4th speed rpm : 1120
 travel mm : 8.40...8.60

5th speed rpm : 1245
 travel mm : 9.60...10.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1075

Aneroid pressure h : 900

Del. quantity : 145.0...147.0

1000 : (142.0...150.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 51...59

Testing:

1st rack travel in: 12.40
Speed rpm : 1115...1125
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 16...24

Testing:

Speed rpm : 100
Minimum rack travel: 9.60
Speed rpm : 300
Rack travel in mm : 8.00...8.20

CONSTANT REGULATION

Speed rpm : 300...490

TORQUE CONTROL

Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 1075
Rack travel in m: 13.40...13.50
2nd speed rpm : 600
Rack travel in m: 13.60...13.80
3rd speed rpm : 950
Rack travel in m: 13.50...13.60

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 450
Pressure hPa : 900
Rack travel mm : 13.40...13.50

Measurement

Speed 1/min : 450

1st pressure hPa : -
Rack travel in m: 12.60...12.80
2nd pressure hPa : 420
Rack travel in m: 13.20...13.30

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 600
Del.quantity cm³/ : 148.0...152.0
1000 s: (145.0...155.0)
Aneroid pressure h: -
Speed rpm : 450
Del.quantity cm³/ : 123.0...125.0
1000 s: (120.0...128.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40
Speed rpm : 1115...1125

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170.0...200.0
1000 s: (166.0...204.0)

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 9,5 a 2
Edition : 30.09.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 046 800
Injection pump
Pump designation : PES6P110A72ORS3140
EP type number : 0 412 016 716
Governor
Governor design. : RQV275...1100PA501-6
Governor no. : 0 421 813 711

Customer-spec. information
Customer : IVECO-UNIC

Engine : 8460.21.202/206

1st version kW : 176.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 3.20...3.30
: (3.15...3.35)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.30...11.40

Del. quantity cm³/ : 13.9...14.2

100 s : (13.6...14.4)

Spread cm³ : 0.4

100 s : (0.7)

2nd speed rpm : 275.0

Rack travel in mm : 6.7...6.9

Del. quantity cm³/ : 2.2...2.7

100 s : (1.9...2.9)

Spread cm³ : 0.4

100 s : (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.20

2nd speed rpm : 400
travel mm : 2.70...3.00

3rd speed rpm : 850
travel mm : 5.00...5.20

4th speed rpm : 1100
travel mm : 6.80...7.00

5th speed rpm : 1500
travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1260

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 700

Del. quantity : 139.0...142.0

1000 : (136.5...144.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever
position degrees: 59...67

Testing:

1st rack travel in: 10.30
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1245...1275
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:

Speed rpm : 100
Minimum rack travel: 8.30
Speed rpm : 275
Rack travel in mm : 6.70...6.90

CONSTANT REGULATION

Speed rpm : 280...525

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.30...11.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.10
2nd pressure hPa : 280
Rack travel in m: 10.80...10.90
3rd pressure hPa : 230
Rack travel in m: 10.30...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 104.0...107.0
1000 s: (101.5...109.5)

BREAKAWAY

1st version

F24

1mm rack travel less than

full load rack tr: 10.30
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 120.0...140.0
1000 s: (116.0...144.0)

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 9,6 u 2
Edition : 05.08.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 046 801
Injection pump
Pump designation : PES6P110A72ORS3104
EP type number : 0 412 016 712
Governor
Governor design. : RQV300...1150PA850-2
Governor no. : 0 421 813 718

Customer-spec. information
Customer : KHD

Engine : BF6LS13RC

1st version kW : 231.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)
Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150
Rack travel in mm : 14.40...14.50
Del. quantity cm³/ : 17.2...17.4
 100 s : (16.9...17.7)
Spread cm³ : 0.4
 100 s : (0.7)
2nd speed rpm : 300.0
Rack travel in mm : 7.7...7.9
Del. quantity cm³/ : 1.6...2.1
 100 s : (1.4...2.4)
Spread cm³ : 0.4
 100 s : (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.20...1.40
2nd speed rpm : 350
travel mm : 1.90...2.50
3rd speed rpm : 650
travel mm : 4.20...4.80
4th speed rpm : 1195
travel mm : 8.40...8.60
5th speed rpm : 1320
travel mm : 9.70...10.10

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1190
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1150
Aneroid pressure h: 900
Del. quantity : 172.0...174.0
 1000 : (169.0...177.0)
Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 52...60

Testing:

1st rack travel in: 13.40

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1305...1335

4th rack travel in: 1450

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 16...24

Testing:

Speed rpm : 100

Minimum rack travel: 9.30

Speed rpm : 300

Rack travel in mm : 7.70...7.90

CONSTANT REGULATION

Speed rpm : 300...490

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 14.40...14.50

2nd speed rpm : 700

Rack travel in m: 14.60...14.80

3rd speed rpm : 950

Rack travel in m: 14.50...14.60

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 450

Pressure hPa : 900

Rack travel mm : 14.60...14.80

Measurement

Speed 1/min : 450

1st pressure hPa : -

Rack travel in m: 12.30...12.50

2nd pressure hPa : 530

Rack travel in m: 14.00...14.10

3rd pressure hPa : 390

Rack travel in m: 12.90...13.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 700

Del. quantity cm³/ : 176.0...180.0

1000 s: (173.0...183.0)

Aneroid pressure h: -

Speed rpm : 450

Del. quantity cm³/ : 123.0...125.0

1000 s: (120.0...128.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.40

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 170.0...200.0

1000 s: (166.0...204.0)

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 14,9 f3
 Edition : 24.06.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 048 048
 Injection pump
 Pump designation : PES8P120A32ORS507
 EP type number : 0 412 028 023
 Governor
 Governor design. : RQV275...10SOPA665-3
 Governor no. : 0 421 813 677

Customer-spec. information
 Customer : RVI

Engine : MIVR083530 G

1st version kW : 299.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp, °C : 38...42
 Overflow valve
 : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 075
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 8- 4- 2- 7- 3-
 6- 5

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1050

 Rack travel in mm : 11.20...11.30

 Del. quantity cm3/ : 19.0...19.2

 100 s: (18.7...19.5)

 Spread cm3 : 0.5

 100 s: (0.9)

 2nd speed rpm : 275.0
 Rack travel in mm : 5.70...5.90
 Del. quantity cm3/ : 1.9...2.5
 100 s: (1.6...2.8)
 Spread cm3 : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275
 travel mm : 1.20...1.60
 2nd speed rpm : 400
 travel mm : 2.90...3.40
 3rd speed rpm : 525
 travel mm : 3.90...4.30
 4th speed rpm : 700
 travel mm : 5.10...5.50
 5th speed rpm : 1050
 travel mm : 7.30...7.50

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1140
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Aneroid pressure h: 700

Del. quantity : 190.0...192.0
1000 : (187.0...195.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:

1st rack travel in: 10.20
Speed rpm : 1105...1115
2nd rack travel in: 4.10
Speed rpm : 1205...1235
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 14...22

Testing:

Speed rpm : 200
Minimum rack travel: 7.50
Speed rpm : 275
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION

Speed rpm : 290...410

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.20...11.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.50...9.70
2nd pressure hPa : 150
Rack travel in m: 10.80...10.90
3rd pressure hPa : 115
Rack travel in m: 10.10...10.30

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

F28

Aneroid pressure h: 700
Speed rpm : 650
Del. quantity cm³/ : 173.0...179.0
1000 s: (170.0...182.0)

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 120.0...122.0
1000 s: (117.0...125.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1105...1115

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.70...5.90
Del. quantity cm³/ : 19.0...25.0
1000 s: (16.0...28.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:
Start-of-delivery mark 12° cam angle
after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,7 e
 Edition : 27.10.88
 Replaces : 16.5.88
 Test oil : ISO-4113

Combination no. : 0 402 076 719

Injection pump
 Pump designation : PES6P110A82OLS3131-1
 EP type number : 0 412 016 717
 Governor
 Governor design. : RSV350...750POA517
 Governor no. : 0 421 833 215

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM427

1st version kW : 142.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40
 : (4.25...4.45)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.20...12.30

Del. quantity cm³/ : 13.6...13.8

100 s: (13.3...14.1)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 350.0

Rack travel in mm : 6.9...7.1

Del. quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 136.0...138.0

1000 : (133.0...141.0)

Spread cm³ : 4.00

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 24...32

Testing:

1st rack travel in: 11.20

Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 775...788
4th rack travel in: 900
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.0

Testing:

Speed rpm : 100
Minimum rack trave: 15.00
Speed rpm : 350
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 360...400

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 740...750

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

Observe VDT-I-420/120
APPLICATION
Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 y 1
Edition : 30.09.88
Replaces : 15.6.88
Test oil : ISO-4113

Combination no. : 0 402 076 722

Injection pump
Pump designation : PES6P120A72ORS3203
EP type number : 0 412 026 728
Governor
Governor design. : RSV400...1100P2A534
Governor no. : 0 421 833 275

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466 HF-050

1st version kW : 194.0

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6,00x3,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
: (3.50...3.70)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.00...12.10

Del. quantity cm³/ : 15.6...15.8

100 s: (15.4...16.1)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 400.0

Rack travel in mm : 4.8...5.0

Del. quantity cm³/ : 1.7...2.2

100 s: (1.5...2.5)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1200

Del. quantity : 156.5...158.5

1000 : (154.0...161.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 11.00
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1200...1210
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.4

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 4.80...5.00
Rack travel in mm : 2.00
Speed rpm : 540...600

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.00...12.10
2nd speed rpm : 750
Rack travel in m: 12.80...13.00

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.30...10.50

Measurement
Speed 1/min : 500

1st pressure hPa : 605
Rack travel in m: 11.00...11.10
2nd pressure hPa : 780
Rack travel in m: 12.10...12.50
3rd pressure hPa : 1200
Rack travel in m: 12.80...13.00

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 750
Del. quantity cm³/ : 174.5...179.5
1000 s: (172.0...182.0)
Aneroid pressure h: -
Speed rpm : 800

Del. quantity cm³/ : 117.5...121.5
1000 s: (114.5...124.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.00
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 125.0...145.0
1000 s: (120.0...150.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 4.80...5.00
Del. quantity cm³/ : 17.5...22.5
1000 s: (15.0...25.0)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:
: JOHN DEERE # RE32035
Adjustment without torque-control
spring retainer with 1 mm less
Starting/full-load transition speed
from holding magnet = 450 1/min. ntrol
pring retainer.
Start-of-delivery mark 10.5° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 y
 Edition : 30.09.88
 Replaces : 15.6.88
 Test oil : ISO-4113

Combination no. : 0 402 076 723

Injection pump
 Pump designation : PES6P120A72ORS3203
 EP type number : 0 412 026 728
 Governor
 Governor design. : RSV400...1100P2A534-1
 Governor no. : 0 421 833 276

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6466 AF-050

1st version kW : 180,0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 101

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

605

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

 Rack travel in mm : 11.80...11.90

 Del. quantity cm³/ : 15.0...15.2

 100 s: (14.7...15.4)

 Spread cm³ : 0.4

 100 s: (0.7)

2nd speed rpm : 400.0
 Rack travel in mm : 4.8...5.0
 Del. quantity cm³/ : 1.7...2.2
 100 s: (1.5...2.5)
 Spread cm³ : 0.4
 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 1200
 Del. quantity : 150.0...152.0
 1000 : (147.5...154.5)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Control lever
 position degrees: 40...48

Testing:
1st rack travel in: 10.80
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1200...1210
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.4

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 4.80...5.00
Rack travel in mm : 2.00
Speed rpm : 540...600

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.80...11.90
2nd speed rpm : 700
Rack travel in m: 12.60...12.80

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 12.60...12.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.40...10.60
2nd pressure hPa : 720
Rack travel in m: 11.00...11.10
3rd pressure hPa : 895
Rack travel in m: 11.80...12.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 700
Del. quantity cm³/ : 173.5...178.5
1000 s: (171.0...181.0)
Aneroid pressure h: -
Speed rpm : 800

Del. quantity cm³/ : 120.0...124.0
1000 s: (117.0...127.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.80
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 125.0...145.0
1000 s: (120.0...150.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 4.80...5.00
Del. quantity cm³/ : 17.5...22.5
1000 s: (15.0...25.0)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks: : JOHN DEERE # RE32033

Adjustment without torque-control
spring retainer with 1 mm less
Starting/full-load transition speed
from holding magnet = 450 1/min. nrol
pring retainer.
Start-of-delivery mark 10.5° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,7 e 1
 Edition : 18.10.88
 Replaces : 7.1.88
 Test oil : ISO-4113
 Combination no. : 0 402 076 724
 Injection pump
 Pump designation : PES6P110A82OLS3131-1
 EP type number : 0 412 016 717
 Governor
 Governor design. : RSV350...75QPOA536
 Govenner no. : 0 421 833 279

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : 0M447
 1st version kW : 129.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40
 : (4.25...4.45)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

 Rack travel in mm : 12.70...12.80

 Del. quantity cm³/ : 14.5...14.7

 100 s: (14.2...14.9)

 Spread cm³ : 0.4

 100 s: (0.8)

2nd speed rpm : 350.0
 Rack travel in mm : 6.9...7.1
 Del. quantity cm³/ : 1.4...2.0
 100 s: (1.1...2.3)
 Spread cm³ : 0.4
 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del. quantity : 145.0...147.0
 1000 : (142.5...149.5)
 Spread cm³ : 4.00
 1000 : (8.00)

RATED SPEED

1st version
 Control lever
 position degrees: 24...32

Testing:
 1st rack travel in: 11.20

Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 775...788
4th rack travel in: 900
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.0

Testing:

Speed rpm : 100
Minimum rack trave: 15.00
Speed rpm : 350
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 360...400

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 740...750

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

Observe VDT-I-420/120

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 f
Edition : 30.09.88
Replaces : 15.6.88
Test oil : ISO-4113

Combination no. : 0 402 076 726

Injection pump
Pump designation : PES6P110A72ORS3209
EP type number : 0 412 016 722
Governor
Governor design. : RSV400...1050POA537
Governor no. : 0 421 833 287

Customer-spec. information
Customer : JOHN DEERE

Engine : 6619 AT 06

1st version kW : 172.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x3.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.45...3.55
: (3.40...3.60)
Rack travel in mm : 10.50

609

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.20...11.30

Del. quantity cm³/ : 16.7...16.9

100 s: (16.5...17.2)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 400.0

Rack travel in mm : 5.0...5.2

Del. quantity cm³/ : 1.6...2.1

100 s: (1.3...2.3)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 167.5...169.5

1000 : (165.0...172.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 10.20

Speed rpm : 1090...1100

2nd rack travel in: 4.00

Speed rpm : 1150...1160

3rd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.6

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.00...5.20
Rack travel in mm : 2.00
Speed rpm : 520...580

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.20...11.30
2nd speed rpm : 700
Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del. quantity cm³/ : 171.5...176.5
1000 s: (169.0...179.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 175.0...195.0
1000 s: (170.0...200.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.00...5.20
Del. quantity cm³/ : 16.0...21.0
1000 s: (13.5...23.5)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

: JOHN DEERE # RE33898

Adjustment without torque-control
spring retainer with 1 mm less
Starting/full-load transition speed
from holding magnet = 450 1/min. ntol
pring retainer.
Start-of-delivery mark at 14° angular
displacement of the cam after start of
delivery of cylinder 1 with control-rod
travel = 10.50 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,7 b
Edition : 30.09.88
Replaces : 15.6.88
Test oil : ISO-4113
Combination no. : 0 402 076 727
Injection pump
Pump designation : PES6P120A720RS3203
EP type number : 0 412 026 728
Governor
Governor design. : RSV400...110CP2A534-
2
Governor no. : 0 421 833 290

Customer-spec. information
Customer : JOHN DEERE

Engine : 6076AF

1st version kW : 160.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X3.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.10...11.20

Del. quantity cm³/ : 13.4...13.6

100 s: (13.1...13.8)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 400.0

Rack travel in mm : 4.8...5.0

Del. quantity cm³/ : 1.7...2.2

100 s: (1.5...2.5)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del. quantity : 134.0...136.0

1000 : (131.5...138.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:
1st rack travel in: 10.10
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1200...1210
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 4.80...5.00
Rack travel in mm : 2.00
Speed rpm : 540...600

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.10...11.20
2nd speed rpm : 700
Rack travel in m: 12.40...12.60

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.50...10.70

Measurement

Speed 1/min : 500

1st pressure hPa : 470
Rack travel in m: 11.20...11.30
2nd pressure hPa : 605
Rack travel in m: 11.80...12.20
3rd pressure hPa : 900
Rack travel in m: 12.40...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 700
Del. quantity cm³/ : 165.5...170.5
1000 s: (163.0...173.0)
Aneroid pressure h: -
Speed rpm : 800

Del. quantity cm³/ : 122.0...126.0
1000 s: (121.0...131.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 125.0...145.0
1000 s: (120.0...150.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 4.80...5.00
Del. quantity cm³/ : 17.5...22.5
1000 s: (15.0...25.0)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

: JOHN DEERE # RE32034

Adjustment without torque-control
spring retainer with 1 mm less
Starting/full-load transition speed
from holding magnet = 450 1/min. ntol
pring retainer.
Start-of-delivery mark 10.5° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,7 c
Edition : 30.09.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 076 728
Injection pump
Pump designation : PES6P120A72ORS3203
EP type number : 0 412 026 728
Governor
Governor design. : RSV425...1050P2A489-
2
Governor no. : 0 421 833 291

Customer-spec. information
Customer : JOHN DEERE

Engine : 6076 HRW01

1st version kW : 175.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x3.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
: (3.50...3.70)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.20...12.30

Del. quantity cm³/ : 16.0...16.2

100 s: (15.7...16.4)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 425.0

Rack travel in mm : 4.8...5.0

Del. quantity cm³/ : 1.7...2.2

100 s: (1.5...2.5)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1200

Del. quantity : 160.0...162.0

1000 : (157.5...164.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 11.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1160...1170
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 4.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 4.80...5.00
Rack travel in mm : 2.00
Speed rpm : 570...630

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.20...12.30
2nd speed rpm : 600
Rack travel in m: 13.40...13.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.40...13.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.10...12.30
2nd pressure hPa : 725
Rack travel in m: 12.50...12.60
3rd pressure hPa : 815
Rack travel in m: 12.90...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 600
Del. quantity cm³/ : 191.0...196.0
1000 s: (188.5...198.5)
Aneroid pressure h: -
Speed rpm : 800

Del. quantity cm³/ : 157.0...161.0
1000 s: (154.0...164.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 125.0...145.0
1000 s: (120.0...150.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 4.80...5.00
Del. quantity cm³/ : 17.5...22.5
1000 s: (15.0...25.0)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

: JOHN DEERE # RE32888

Adjustment without torque-control
spring retainer with 1 mm less
Starting/full-load transition speed
from holding magnet = 450 1/min. nrol
pring retainer.
Start-of-delivery mark 10.5° cam angle
after start of delivery cyl. 1

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 g
Edition : 30.09.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 076 730
Injection pump
Pump designation : PES6P110A72ORS3217
EP type number : 0 412 016 724
Governor
Governor design. : RSV400...1050P2A534-
3
Governor no. : 0 421 833 304

Customer-spec. information
Customer : JOHN DEERE

Engine : 6619AT07

1st version kW : 201,0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X3.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.45...3.55
: (3.40...3.60)

Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.70...11.80

Del. quantity cm³/ : 18.6...18.8

100 s: (18.3...19.0)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 400.0

Rack travel in mm : 5.2...5.4

Del. quantity cm³/ : 2.0...2.5

100 s: (1.8...2.8)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 900

Del. quantity : 186.0...188.0

1000 : (183.5...190.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 10.70

Speed rpm : 1090...1100

2nd rack travel in: 4.00
Speed rpm : 1150...1160
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.8

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.20...5.40
Rack travel in mm : 2.00
Speed rpm : 590...650

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.70...11.80
2nd speed rpm : 700
Rack travel in m: 12.50...12.70

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 425
Rack travel mm : 11.20...11.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...10.80
2nd pressure hPa : 675
Rack travel in m: 12.00...12.40
3rd pressure hPa : 900
Rack travel in m: 12.50...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 700
Del. quantity cm³/ : 201.5...206.5
1000 s: (199.0...209.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 158.0...162.0
1000 s: (155.0...165.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 165.0...185.0
1000 s: (160.0...190.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.20...5.40
Del. quantity cm³/ : 20.5...25.5
1000 s: (18.0...28.0)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

: JOHN DEERE # RE36078

Adjustment without torque-control
spring retainer with 1 mm less
Starting/full-load transition speed
from holding magnet = 450 1/min. ntrol
pring retainer.
Start-of-delivery mark 10.5° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 g1
Edition : 30.09.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 076 731
Injection pump
Pump designation : PES6P110A72ORS3217
EP type number : 0 412 016 724
Governor
Governor design. : RSV400...10SOP2A534-
4
Governor no. : 0 421 833 305
Customer-spec. information
Customer : JOHN DEERE
Engine : 6101 H
1st version kW : 224.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 457 413 010
Inlet press., bar : 1.50
Test nozzle holder
assembly : 0 681 343 009
Opening
pressure, bar : 172...175
Test lines : 1 680 750 008
Outside diameter
x Wall thickness
x Length mm : 6.00x3.00x600
(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29
Prestroke mm : 3.45...3.55
: (3.40...3.60)

Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)
Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050
Rack travel in mm : 12.60...12.70
Del. quantity cm³/ : 20.8...21.0
100 s : (20.5...21.2)
Spread cm³ : 0.4
100 s : (0.7)
2nd speed rpm : 400.0
Rack travel in mm : 5.2...5.4
Del. quantity cm³/ : 2.0...2.5
100 s : (1.8...2.8)
Spread cm³ : 0.4
100 s : (0.7)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Aneroid pressure h: 900
Del. quantity : 208.0...210.0
1000 : (205.5...212.5)
Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 39...47

Testing:
1st rack travel in: 11.60
Speed rpm : 1090...1100

2nd rack travel in: 4.00
Speed rpm : 1155...1165
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.8

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.20...5.40
Rack travel in mm : 2.00
Speed rpm : 590...650

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.60...12.70
2nd speed rpm : 750
Rack travel in m: 13.40...13.60

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.40...13.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.80...11.00
2nd pressure hPa : 310
Rack travel in m: 11.50...11.60
3rd pressure hPa : 650
Rack travel in m: 12.60...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 750
Del. quantity cm³/ : 219.5...224.5
1000 s: (217.0...227.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 161.5...165.5
1000 s: (158.5...168.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.60
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 165.0...185.0
1000 s: (160.0...190.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.20...5.40
Del. quantity cm³/ : 20.5...25.5
1000 s: (18.0...28.0)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

: JOHN DEERE # RE36881

Adjustment without torque-control
spring retainer with 1 mm less
Starting/full-load transition speed
from holding magnet = 450 1/min. nrol
pring retainer.
Start-of-delivery mark 10.5° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 21,0 a
Edition : 01.07.88
Replaces : -
Test oil : IS0-4113
Combination no. : 0 402 640 811
Injection pump
Pump designation : PE12P120AS2QLS7812
EP type number : 0 412 620 807
Governor
Governor design. : RGV25C...1150PA860-1
Governor no. : 0 421 813 692

Customer-spec. information
Customer : MAN

Engine : D2842LYE

1st version kW : 735.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.90...5.00
(4.85...5.05)
Rack travel in mm : 9.00...12.00
Firing order : 12- 1- 5- 9- 8- 3
- 4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-180-225-240-285-300-
Phasing : 345
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.20...13.30

Del. quantity cm3/ : 28.9...29.1
100 s: (28.6...29.4)

Spread cm3 : 0.5
100 s: (0.9)

2nd speed rpm : 250
Rack travel in mm : 7.30...7.50
Del. quantity cm3/ : 52.0...60.0 *
100 s: (-)

3rd speed rpm : 500
Rack travel in mm : < 7.50
Del. quantity cm3/ : - **
100 s: (-)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
travel mm : 2.00...2.40
2nd speed rpm : 900
travel mm : 6.70...7.10
3rd speed rpm : 1150
travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1150
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1150
Aneroid pressure h: 1300

Del. quantity : 289.0...291.0
1000 : (286.0...294.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 63...71

Testing:
1st rack travel in: 12.20
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1345...1375
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8..16

Testing:
Speed rpm : 100
Minimum rack travel: 8.90
Speed rpm : 250
Rack travel in mm : 7.30...7.50
Rack travel in mm : 2.00
Speed rpm : 405...465

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1300
Rack travel mm : 13.20...13.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.80...9.00
2nd pressure hPa : 270
Rack travel in m: 9.20...9.30
3rd pressure hPa : 790
Rack travel in m: 11.40...11.80

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -

G20

Speed rpm : 500
Del. quantity cm³/ : 146.0...148.0
1000 s: (143.0...151.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.20
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 100.0...120.0 *
1000 s: (-)

LOW IDLE

Speed rpm : 500
Rack travel in mm : <8.00
Del. quantity cm³/ : <50.0
1000 s: (-)

Remarks:

:
* applies to cylinders 4, 5, 6, 8, 10
and 12
** applies for cylinders 1, 2, 3, 7, 9
and 11

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 22,0 b
Edition : 27.10.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 640 812

Injection pump
Pump designation : PE12P120A520LS7820
EP type number : 0 412 620 814
Governor
Governor design. : RQV350...1150PA870-4
Governor no. : 0 421 813 717

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM 444 LA

1st version kW : 736.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 150...170

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
Rack travel in mm : 19.00...21.00
Firing order : 12- 1- 5- 9- 8- 3
 - 4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-
 180-225-240-285-300-
 345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 14.30...14.40

Del. quantity cm³/ : 31.0...31.2

100 s: (30.7...31.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0
Rack travel in mm : 5.0...6.1
Del. quantity cm³/ : 1.6...2.2
100 s: (1.3...2.5)
Spread cm³ : 0.6
100 s: (1.0)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
travel mm : 2.10...2.30
2nd speed rpm : 700
travel mm : 3.90...4.20
3rd speed rpm : 1190
travel mm : 8.00...8.50
4th speed rpm : 1220
travel mm : 9.70...10.30

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1250
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150
Aneroid pressure h: 1800
Del. quantity : 310.0...312.0
1000 : (307.0...315.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 60...68

Testing:

1st rack travel in: 13.30
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1270...1300
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18

Testing:

Speed rpm : 200
Minimum rack travel: 6.60
Speed rpm : 350
Rack travel in mm : 5.00...5.30

CONSTANT REGULATION

Speed rpm : 350...600

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : -
Rack travel mm : 6.60...6.90

Measurement

Speed 1/min : 500

1st pressure hPa : 400
Rack travel in m: 8.00...8.10
2nd pressure hPa : 1200
Rack travel in m: 12.30...12.60

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800
Speed rpm : 750
Del. quantity cm³/ : 310.0...314.0
1000 s: (307.0...317.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1800
Speed rpm : 1150
Del. quantity cm³/ : 240.0...243.0 *
1000 s: (237.0...246.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 94.0...96.0
1000 s: (91.0...99.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.30
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 330.0...350.0
1000 s: (326.0...354.0)

Remarks:

:

* = Set at reduced-delivery stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,0 u
 Edition : 02.09.88
 Replaces : 8.85
 Test oil : ISO-4113

Combination no. : 0 402 646 801

Injection pump
 Pump designation : PE6P120A72ORS7001
 EP type number : 0 412 626 800
 Governor
 Governor design. : RQV200...1000PA539
 Governor no. : 0 421 813 269

Customer-spec. information
 Customer : SCANIA

Engine : DS11 15

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6,00x1,50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 25...27
 Date of mfg. : 141

Prestroke mm : 5,00...5,10
 : (4,95...5,15)

Rack travel in mm : 9.00...12.00
 Date of mfg. : <052
 Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.20...13.30

Del. quantity cm³/ : 19.9...20.1

100 s: (19.6...20.4)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 225.0

Rack travel in mm : 4.6...4.8

Del. quantity cm³/ : 1.3...1.7

100 s: (-)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225
 travel mm : 1.20...1.60

2nd speed rpm : 350
 travel mm : 2.40...3.00

3rd speed rpm : 650
 travel mm : 4.50...5.10

4th speed rpm : 1045
 travel mm : 8.40...8.60

5th speed rpm : 1165
 travel mm : 10.00...10.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1040

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700
Aneroid pressure h: 900
Del. quantity : 199.0...201.0
1000 : (196.0...204.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 58...66

Testing:
1st rack travel in: 12.20
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 5...13

Testing:
Speed rpm : 100
Minimum rack travel: 5.90
Speed rpm : 225
Rack travel in mm : 4.40...4.60
Rack travel in mm : 2.00
Speed rpm : 310...370

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.20...13.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.60...11.70
2nd pressure hPa : 420
Rack travel in m: 12.80...12.90
3rd pressure hPa : 290
Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1000

Del. quantity cm³/ : 191.0...199.0
1000 s: (191.0...203.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 160.0...164.0
1000 s: (158.0...166.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.20
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 240.0...290.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.40...4.60

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over
on Aug. 18, 1983
Start of delivery - engine: 17° before
TDC
Firing sequence of engine:

1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,0 u1
Edition : 01.09.88
Replaces : 23.9.86
Test oil : ISO-4113

Combination no. : 0 402 646 802

Injection pump
Pump designation : PE6P120A72ORS7001
EP type number : 0 412 626 800
Governor
Governor design. : RQV200...1050PAS39
Governor no. : 0 421 813 290

Customer-spec. information
Customer : SAAB - SCANIA

Engine : DS 11

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
: (4.95...5.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.20...13.30

Del. quantity cm³/ : 19.9...20.1

100 s: (19.6...20.4)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 225.0

Rack travel in mm : 4.4...4.6

Del. quantity cm³/ : 1.3...1.7

100 s: (-)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225
travel mm : 1.30...1.40

2nd speed rpm : 270
travel mm : 1.80...2.10

3rd speed rpm : 340
travel mm : 2.40...2.80

4th speed rpm : 1090
travel mm : 8.30...8.50

5th speed rpm : 1200
travel mm : 9.70...10.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1110

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del. quantity : 199.0...201.0

1000 : (196.0...204.0)

Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 58...66

Testing:

1st rack travel in: 12.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 5...13

Testing:

Speed rpm : 100
Minimum rack travel: 5.90
Speed rpm : 225
Rack travel in mm : 4.40...4.60
Rack travel in mm : 2.00
Speed rpm : 310...370

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.20...13.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.60...11.70
2nd pressure hPa : 420
Rack travel in m: 12.80...12.90
3rd pressure hPa : 290
Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 1050
Del. quantity cm³/ : 193.0...201.0
1000 s: (191.0...203.0)
Aneroid pressure h: -
Speed rpm : 500

Del. quantity cm³/ : 160.0...164.0
1000 s: (158.0...166.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 240.0...290.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.40...4.60
Del. quantity cm³/ : 13.0...17.0
1000 s: (-)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over
on Aug. 18, 1983
Engine model DS 11 - 17⁰ before top
dead center.

Firing sequence of engine:
1-5-3-6-2-4.



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,0 v
Edition : 01.09.88
Replaces : 9.3.87
Test oil : ISO-4113

Combination no. : 0 402 646 803

Injection pump
Pump designation : PE6P120A72ORS7004
EP type number : 0 412 626 801
Governor
Governor design. : RQ750PAS28
Governor no. : 0 421 801 126

Customer-spec. information
Customer : SAAB-SCANIA

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27
Date of mfg. : 141

Prestroke mm : 5.00...5.10
: (4.95...5.15)

Rack travel in mm : 9.00...12.00
Date of mfg. : <052

H01

Prestroke mm : 4.40...4.50
: (4.35...4.55)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.80...12.90

Del. quantity cm³/ : 20.9...21.1

100 s : (20.6...21.4)

Spread cm³ : 0.6

100 s : (0.9)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700
Del. quantity : 209.0...211.0
1000 : (206.0...214.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version

Testing:
1st rack travel in: 11.80
Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 784...797
4th rack travel in: 850
Speed rpm : 0.00...1.00

LOW IDLE 1

Testing:
Speed rpm : 100
Rack travel in mm : 2.00

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 240.0...290.0
1000 s: (-)

Rack travel in mm : 20.00...21.00

HIGH IDLE

1st version

Rack travel in mm : 4.90...5.10

Spread cm³ : 4.00

1000 s: (7.00)

Remarks:

: DS11 43, 44, 45

: DSI11 42, 45

ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over
on Aug. 18, 1983

Start of delivery - engine:

DS 11 - 17° before TDC

DSI 11 - 16° before TDC

Firing sequence of engine:

1-5-3-6-2-4.

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 t
 Edition : 05.08.88
 Replaces : 13.6.88
 Test oil : ISO-4113

Combination no. : 0 402 646 838

Injection pump
 Pump designation : PE6P120A320LS7808
 EP type number : 0 412 626 816
 Governor
 Governor design. : RQ300/1050PA762-4
 Governor no. : 0 421 801 390

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM441 LA

1st version kW : 240.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300
 -360

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.90...14.10

Del. quantity cm³/ : 21.4...21.6

100 s: (21.1...21.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.7...6.0

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 900

Del. quantity : 214.0...216.0

1000 : (211.0...219.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:
1st rack travel in: 13.70
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.8

Testing:
Speed rpm : 200
Minimum rack travel: 7.70
Speed rpm : 300
Rack travel in mm : 5.70...6.00
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL
Dimension a mm : 0.30
2nd speed rpm : 1050
Rack travel in m: 14.70...14.90
3rd speed rpm : 800
Rack travel in m: 15.10...15.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 13.90...14.10

Measurement
Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 10.70...10.90
2nd pressure hPa : 550
Rack travel in m: 12.70...12.90
3rd pressure hPa : 1050
Rack travel in m: 14.00...14.10
4th pressure hPa : 1150
Rack travel in m: 14.40...14.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1350

H04

Speed rpm : 1050
Del.quantity cm3/ : 236.0...239.0
1000 s: (233.0...242.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1350
Speed rpm : 800
Del.quantity cm3/ : 243.0...247.0
1000 s: (240.0...250.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 145.0...147.0
1000 s: (142.0...150.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.70
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 205.0...225.0
1000 s: (201.0...229.0)

Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : WAU 18,0 a
Edition : 05.08.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 646 862
Injection pump
Pump designation : PE6P130A720RS7112
EP type number : 0 412 636 802
Governor
Governor design. : RQ350/925PA892
Governor no. : 0 421 801 441

Customer-spec. information
Customer : WAUKESHA

Engine : F180DS/DSI

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025
Inlet press., bar : 1.50
Test nozzle holder
assembly : 1 688 901 019
Opening
pressure, bar : 207...210
Orifice plate
diameter mm : 0,8
Test lines : 1 680 750 067
Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27
Prestroke mm : 4.40...4.50
: (4.35...4.55)
Rack travel in mm : 9.00...12.00

H05

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900
Rack travel in mm : 13.30...13.40
Del. quantity cm³/ : 29.9...30.2
100 s : (29.5...30.5)
Spread cm³ : 0.6
100 s : (1.0)
2nd speed rpm : 350.0
Rack travel in mm : 5.2...5.4
Del. quantity cm³/ : 2.4...3.0
100 s : (2.0...3.4)
Spread cm³ : 1.0
100 s : (1.4)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 600
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 900
Del. quantity : 299.0...302.0
1000 : (295.5...305.5)
Spread cm³ : 6.00
1000 : (10.00)

RATED SPEED

1st version

Setting point:
Speed rpm : 600
Rack travel in mm : 16.5

Testing:

1st rack travel in: 12.30
Speed rpm : 970...985
2nd rack travel in: 4.00
Speed rpm : 1040...1070
4th rack travel in: 1150

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 5.3

Testing:

Speed rpm : 100

Minimum rack trave: 6.80

Speed rpm : 350

Rack travel in mm : 5.20...5.40

Rack travel in mm : 2.00

Speed rpm : 440...480

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.30

Speed rpm : 970...985

INTERMEDIATE RATED SPEED

Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.20...5.40

Del. quantity cm³/ : 24.0...30.0

1000 s: (20.0...34.0)

Spread cm³ : 10.00

1000 s: (14.00)

Remarks:

:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : STE 9,7 d 2
Edition : 24.06.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 646 867
Injection pump
Pump designation : PE6P120A72ORS7118-1
EP type number : 0 412 626 825
Governor
Governor design. : RQV250..1100PA785-2
Governor no. : 0 421 813 710

Customer-spec. information
Customer : STEYR

Engine : WD615.98

1st version kW : 228.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

H07

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.70...12.80

Del. quantity cm³/ : 18.1...18.3

100 s : (17.8...18.6)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 4.8...5.0

Del. quantity cm³/ : 1.5...2.1

100 s : (1.2...2.4)

Spread cm³ : 0.8

100 s : (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.20...1.30

2nd speed rpm : 350
travel mm : 1.80...2.20

3rd speed rpm : 410
travel mm : 2.30...2.70

4th speed rpm : 1150
travel mm : 8.40...8.60

5th speed rpm : 1240
travel mm : 9.50...9.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1200

Del. quantity : 181.0...183.0
1000 : (178.0...186.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 44...52

Testing:
1st rack travel in: 11.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1225...1255
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 10...18

Testing:
Speed rpm : 100
Minimum rack travel: 6.30
Speed rpm : 250
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION
Speed rpm : 275...375

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 12.70...12.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.30...10.40
2nd pressure hPa : 570
Rack travel in m: 12.10...12.20
3rd pressure hPa : 360
Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 700
Del. quantity cm3/ : 190.0...196.0
1000 s: (187.0...199.0)

Aneroid pressure h: -
Speed rpm : 700
Del. quantity cm3/ : 143.0...145.0
1000 s: (140.0...148.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 225.0...265.0
1000 s: (221.0...269.0)
Rack travel in mm : 19.50...21.00

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
APPLICATION
Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 14,2 a3
Edition : 23.09.88
Replaces : 21.5.87
Test oil : ISO-4113

Combination no. : 0 402 648 801

Injection pump
Pump designation : PEBP120A920/4LS7002
EP type number : 0 412 628 800
Governor
Governor design. : RQV250...1000PA547
Governor no. : 0 421 813 270

Customer-spec. information
Customer : SCANIA

Engine : DS14 06

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 5.00...5.10
: (4.95...5.15)

Rack travel in mm : 9.00...12.00

H09

Firing order : 1- 2- 7- 3- 4- 5-
6- 8

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.20...13.30

Del. quantity cm³/ : 18.7...18.9
100 s : (18.4...19.2)

Spread cm³ : 0.6
100 s : (0.9)

2nd speed rpm : 225.0
Rack travel in mm : 4.9...5.1
Del. quantity cm³/ : 1.0...1.4
100 s : (-)

Spread cm³ : 0.3
100 s : (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225
travel mm : 1.20...1.60

2nd speed rpm : 350
travel mm : 2.40...3.00

3rd speed rpm : 650
travel mm : 4.50...5.10

4th speed rpm : 1045
travel mm : 8.40...8.60

5th speed rpm : 1165
travel mm : 10.00...10.40

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1

Speed rpm : 1040
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Aneroid pressure h : 900
Del. quantity : 187.0...189.0
1000 : (184.0...192.0)

Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 58...66

Testing:

1st rack travel in: 12.20
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 5...13
Setting point w/out bumper spring
Speed rpm : 225
Rack travel in mm : 4.5

Testing:

Speed rpm : 100
Minimum rack travel: 5.90
Speed rpm : 225
Rack travel in mm : 4.40...4.60
Rack travel in mm : 2.00
Speed rpm : 310...370

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.20...13.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.30...11.40
2nd pressure hPa : 350
Rack travel in m: 12.80...12.90
3rd pressure hPa : 230
Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 1000
Del. quantity cm³/ : 184.0...192.0
1000 s: (182.0...194.0)

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 137.0...141.0
1000 s: (135.0...143.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.20
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 240.0...290.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.40...4.60

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Check and set without RO80 diaphragm

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over
on Aug. 19, 1983
Engine start of delivery: 18° BTDC

Engine firing sequence: 1-5-4-2-6-3-7-8

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 14,2 b
 Edition : 01.09.88
 Replaces : 9.84
 Test oil : ISO-4113
 Combination no. : 0 402 648 804
 Injection pump
 Pump designation : PE8P120A920/4LS7003
 EP type number : 0 412 628 801
 Governor
 Governor design. : RQ900PAS28
 Governor no. : 0 421 801 127

Customer-spec. information
 Customer : SAAB-SCANIA

Engine : DS14 41,DSI14 42

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00

H12

Firing order : 1- 2- 7- 3- 4- 5-
 6- 8

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

 Rack travel in mm : 12.80...12.90

 Del. quantity cm³/ : 18.6...18.8

 100 s: (18.3...19.1)

 Spread cm³ : 0.6

 100 s: (0.9)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 850
 Del. quantity : 186.0...188.0
 1000 : (183.0...191.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version
 Testing:
 1st rack travel in: 11.80
 Speed rpm : 900...905
 2nd rack travel in: 4.00
 Speed rpm : 941...955
 4th rack travel in: 1000
 Speed rpm : 0.00...1.00

LOW IDLE 1

Testing:
 Speed rpm : 100
 Rack travel in mm : 2.00

STARTING FUEL DELIVERY

Speed rpm : 100
 Del. quantity cm³/ : 240.0...290.0
 1000 s: (-)
 Rack travel in mm : 20.00...21.00

HIGH IDLE

1st version

Rack travel in mm : 4.90...5.10

Spread cm³ : 4.00

1000 s: (7.00)

Remarks:

:

ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania
on 1986-06-04

Start of delivery - engine:

DS 14 - 18° before TDC

DSI 14 - 17° before TDC

Engine firing sequence: 1-5-4-2-6-3-7-8

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 a 4
 Edition : 27.10.88
 Replaces : 29.4.88
 Test oil : IS0-4113
 Combination no. : 0 402 648 817
 Injection pump
 Pump designation : PE8P120A320LS7801
 EP type number : 0 412 628 806
 Governor
 Governor design. : RQ300/1050PA762-5
 Governor no. : 0 421 801 399

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM442 A

1st version kW : 260.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 500

 Rack travel in mm : 14.10...14.30

 Del. quantity cm³/ : 20.3...20.5

 100 s: (20.0...20.8)

 Spread cm³ : 0.5

 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.2...6.6
 Del. quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 500
 Aneroid pressure h: 650
 Del. quantity : 203.0...205.0
 1000 : (200.0...208.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.70
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.3

Testing:

Speed rpm : 200
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 6.20...6.40
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.75
2nd speed rpm : 1050
Rack travel in m: 12.70...12.90
3rd speed rpm : 850
Rack travel in m: 13.70...14.00
4th speed rpm : 700
Rack travel in m: 14.30...14.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 650
Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 12.40...12.60
2nd pressure hPa : 400
Rack travel in m: 13.30...13.60
3rd pressure hPa : 850
Rack travel in m: 14.20...14.30
4th pressure hPa : 1050
Rack travel in m: 14.65...14.75
5th pressure hPa : -
Rack travel in m: 11.50...11.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1050
Speed rpm : 1050
Del.quantity cm³/ : 180.0...183.0
1000 s: (177.0...186.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1050
Speed rpm : 700
Del.quantity cm³/ : 215.0...219.0
1000 s: (212.0...222.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1050
Speed rpm : 850
Del.quantity cm³/ : 206.0...210.0
1000 s: (203.0...213.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 149.0...151.0
1000 s: (146.0...154.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 175.0...190.0
1000 s: (171.0...194.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 a 3
 Edition : 12.08.88
 Replaces : 12.9.86
 Test oil : ISO-4113

Combination no. : 0 402 648 818

Injection pump
 Pump designation : PE8P120A320LS7801
 EP type number : 0 412 628 806
 Governor
 Governor design. : RQ300/950PA762-1
 Governor no. : 0 421 801 304

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM442 LA

1st version kW : 298.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1,50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

 Rack travel in mm : 14.20...14.40

 Del. quantity cm³/ : 21.0...21.2

 100 s: (20.7...21.5)

 Spread cm³ : 0.5

 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.8...6.0
 Del. quantity cm³/ : 1.2...2.0
 100 s: (0.9...2.3)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 750
 Del. quantity : 210.0...212.0
 1000 : (207.0...215.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.00
Speed rpm : 990...1010
2nd rack travel in: 4.00
Speed rpm : 1060...1090
4th rack travel in: 1200
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 365...405

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 950
Rack travel in m: 14.00...14.20
2nd speed rpm : 925
Rack travel in m: 14.20...14.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 750
Rack travel mm : 14.20...14.40

Measurement

Speed 1/min : 600

1st pressure hPa : 320
Rack travel in m: 11.80...12.00
2nd pressure hPa : 420
Rack travel in m: 13.40...13.60
3rd pressure hPa : 850
Rack travel in m: 14.30...14.40
4th pressure hPa : 1050
Rack travel in m: 14.60...14.80
5th pressure hPa : -
Rack travel in m: 11.50...11.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

H17

1st version

Aneroid pressure h: 1050
Speed rpm : 950
Del.quantity cm3/ : 211.0...214.0
1000 s: (208.0...217.0)
Spread cm3 : 8.00
1000 s: (12.0)

Aneroid pressure h: 1050
Speed rpm : 800
Del.quantity cm3/ : 225.0...228.0
1000 s: (222.0...231.0)
Spread cm3 : 8.00
1000 s: (12.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 152.0...154.0
1000 s: (149.0...157.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 990...1010

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 180.0...195.0
1000 s: (176.0...199.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 a
 Edition : 12.08.88
 Replaces : 8.85
 Test oil : ISO-4113

Combination no. : 0 402 648 819

Injection pump
 Pump designation : PE8P120A320LS7801
 EP type number : 0 412 628 806
 Governor
 Governor design. : RQ300/900PA762-2
 Governor no. : 0 421 801 305

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM442 LA

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 900

 Rack travel in mm : 13.00...13.10

 Del. quantity cm³/ : 19.2...19.5

 100 s: (18.9...19.8)

 Spread cm³ : 0.5

 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.9...6.1
 Del. quantity cm³/ : 1.2...2.0
 100 s: (0.9...2.3)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Aneroid pressure h: 750
 Del. quantity : 192.0...195.0
 1000 : (189.0...198.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.10
Speed rpm : 940...955
2nd rack travel in: 4.00
Speed rpm : 1020...1050
4th rack travel in: 1150
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 7.60
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 365...405

TORQUE CONTROL

Dimension a mm : 1.20
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 13.00...13.10
2nd speed rpm : 600
Rack travel in m: 14.20...15.40
3rd speed rpm : 850
Rack travel in m: 13.50...13.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.20...11.40

Measurement

Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 11.70...11.80
2nd pressure hPa : 450
Rack travel in m: 13.20...13.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750
Speed rpm : 600
Del. quantity cm³/ : 209.0...211.0
1000 s: (206.0...214.0)

Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 153.0...155.0
1000 s: (150.0...158.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.10
Speed rpm : 940...955

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 175.0...190.0
1000 s: (171.0...194.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 a 5
Edition : 27.10.88
Replaces : 11.3.88
Test oil : IS0-4113

Combination no. : 0 402 648 825

Injection pump
Pump designation : PE8P120A320LS7801
EP type number : 0 412 628 806
Governor
Governor design. : RQV300..1050PA797-3
Governor no. : 0 421 813 627

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM442 A

1st version kW : 260.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
Tolerance + - ° : 0.50 (0.75)
Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 14.10...14.30

Del. quantity cm³/ : 20.3...20.5

100 s: (20.0...20.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 6.2...6.6
Del. quantity cm³/ : 1.6...2.2
100 s: (1.3...2.5)
Spread cm³ : 0.6
100 s: (1.0)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.20...1.40
2nd speed rpm : 600
travel mm : 4.90...5.10
3rd speed rpm : 1075
travel mm : 7.40...7.60
4th speed rpm : 1100
travel mm : 8.00...8.20
5th speed rpm : 1150
travel mm : 9.00...9.20

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1125
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 500
Aneroid pressure h: 650
Del. quantity : 203.0...205.0
1000 : (200.0...208.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 54...62

Testing:
1st rack travel in: 11.70
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 17...25

Testing:
Speed rpm : 100
Minimum rack trave: 7.70
Speed rpm : 300
Rack travel in mm : 6.20...6.40

CONSTANT REGULATION
Speed rpm : 300...450

TORQUE CONTROL
Dimension a mm : 1.40
2nd speed rpm : 1050
Rack travel in m: 12.70...12.90
3rd speed rpm : 850
Rack travel in m: 13.70...14.00
4th speed rpm : 700
Rack travel in m: 14.30...14.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 650
Rack travel mm : 14.10...14.30

Measurement
Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 12.40...12.60

2nd pressure hPa : 400
Rack travel in m: 13.40...13.70
3rd pressure hPa : 850
Rack travel in m: 14.20...14.30
4th pressure hPa : 1050
Rack travel in m: 14.60...14.80
5th pressure hPa : -
Rack travel in m: 11.50...11.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1050
Speed rpm : 1050
Del. quantity cm³/ : 180.0...183.0
1000 s: (177.0...186.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1050
Speed rpm : 700
Del. quantity cm³/ : 215.0...219.0
1000 s: (212.0...222.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1050
Speed rpm : 850
Del. quantity cm³/ : 206.0...210.0
1000 s: (203.0...213.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 149.0...151.0
1000 s: (146.0...154.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 175.0...190.0
1000 s: (171.0...194.0)

Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 f
 Edition : 11.07.88
 Replaces : 18.9.87
 Test oil : ISO-4113

Combination no. : 0 402 648 832

Injection pump
 Pump designation : PE8P120A32QLS7810
 EP type number : 0 412 628 819
 Governor
 Governor design. : RQ300/105QPA858
 Governor no. : 0 421 801 398

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM442 LA

1st version kW : 368.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 19.50...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

 Rack travel in mm : 14.30...14.50

 Del. quantity cm³/ : 23.9...24.1

 100 s: (23.6...24.4)

Spread cm³ : 0.5

 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.2...5.5
 Del. quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 900
 Del. quantity : 239.0...241.0
 1000 : (236.0...244.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.10
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.3

Testing:

Speed rpm : 200
Minimum rack travel: 7.40
Speed rpm : 300
Rack travel in mm : 5.20...5.50
Rack travel in mm : 2.00
Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : 0.35
2nd speed rpm : 1050
Rack travel in m: 15.10...15.30
3rd speed rpm : 800
Rack travel in m: 13.30...15.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 14.30...14.50

Measurement

Speed 1/min : 600

1st pressure hPa : 320
Rack travel in m: 10.20...10.40
2nd pressure hPa : 620
Rack travel in m: 13.00...13.20
3rd pressure hPa : 1100
Rack travel in m: 14.40...14.50
4th pressure hPa : 1500
Rack travel in m: 15.30...15.50
5th pressure hPa : -
Rack travel in m: 8.40...8.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1050
Del. quantity cm³/ : 257.0...260.0
1000 s: (254.0...263.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 800
Del. quantity cm³/ : 265.0...269.0
1000 s: (262.0...272.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 133.0...135.0
1000 s: (130.0...138.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.10
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 i 1
Edition : 01.07.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 648 846

Injection pump
Pump designation : PE8P120A320LS7815
EP type number : 0 412 628 827
Governor
Governor design. : RQV350..105CPA870-3
Governor no. : 0 421 813 700

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM442LA

1st version kW : 368.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 15.10...15.20

Del. quantity cm³/ : 25.8...26.0

100 s: (25.5...26.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0
Rack travel in mm : 5.2...5.7
Del. quantity cm³/ : 1.6...2.2
100 s: (1.3...2.5)
Spread cm³ : 0.6
100 s: (1.0)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
travel mm : 1.90...2.10
2nd speed rpm : 700
travel mm : 4.10...4.50
3rd speed rpm : 1100
travel mm : 7.60...8.00
4th speed rpm : 1200
travel mm : 9.50...9.90

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1150
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050
Aneroid pressure h: 1500
Del. quantity : 258.0...260.0
1000 : (255.0...263.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:

1st rack travel in: 14.10
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16

Testing:

Speed rpm : 200
Minimum rack trave: 7.70
Speed rpm : 350
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

Speed rpm : 350...600

TORQUE CONTROL

Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 15.10...15.20
2nd speed rpm : 1000
Rack travel in m: 15.30...15.50
3rd speed rpm : 930
Rack travel in m: 15.50...15.70

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 14.50...14.70

Measurement

Speed 1/min : 600

1st pressure hPa : 330
Rack travel in m: 10.50...10.70
2nd pressure hPa : 600

Rack travel in m: 13.10...13.30
3rd pressure hPa : 1260
Rack travel in m: 14.70...14.90
4th pressure hPa : 1400
Rack travel in m: 15.10...15.30
5th pressure hPa : -
Rack travel in m: 8.80...9.10

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 950
Speed rpm : 600
Del. quantity cm³/ : 239.0...241.0
1000 s: (236.0...244.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 800
Del. quantity cm³/ : 266.0...269.0
1000 s: (263.0...272.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 1050
Del. quantity cm³/ : 194.0...196.0
1000 s: (191.0...199.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : -
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 14.10
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 260.0...280.0
1000 s: (256.0...284.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : WAU 24,0 a
Edition : 05.08.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 648 847

Injection pump
Pump designation : PE8P130A920/4RS7158
EP type number : 0 412 638 801
Governor
Governor design. : RQV350...900PA760-1
Governor no. : 0 421 813 617

Customer-spec. information
Customer : WAUKESHA

Engine : H24DS/DSI

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 580 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 3.50...3.70
 : (3.55...3.75)
Rack travel in mm : 9.00...12.00

Firing order : 1- 4- 2- 6- 8- 5
 - 7- 3

Phasing : 0-45-090-135-180-225
 -270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 13.80...13.90

Del. quantity cm³/ : 36.8...37.1

100 s : (26.5...37.5)

Spread cm³ : 0.6

100 s : (1.0)

2nd speed rpm : 350.0
Rack travel in mm : 6.0...6.2
Del. quantity cm³/ : 1.5...2.1
100 s : (1.1...2.5)
Spread cm³ : 1.0
100 s : (1.4)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
travel mm : 1.50...1.80
2nd speed rpm : 700
travel mm : 5.30...5.70
3rd speed rpm : 950
travel mm : 8.40...8.60

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 950
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 900
Del. quantity : 368.5...371.5
1000 : (265.0...375.0)
Spread cm³ : 6.00
1000 : (10.00)

RATED SPEED

1st version
Control lever
position degrees: 58...66

Testing:
1st rack travel in: 12.80
Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 1030...1060
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 9...17

Testing:
Speed rpm : 100
Minimum rack trave: 7.60
Speed rpm : 350
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION
Speed rpm : 350...500

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.80
Speed rpm : 940...950

INTERMEDIATE RATED SPEED
Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100

Remarks:
:

APPLICATION
Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : WAU 24,0 a1
Edition : 05.08.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 648 848
Injection pump
Pump designation : PE8P130A920/4RS7158
EP type number : 0 412 638 801
Governor
Governor design. : RQ350/92SPA892
Governor no. : 0 421 801 441

Customer-spec. information
Customer : WALKESHA

Engine : H24DS/DSI

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
Overflow valve : 1 417 413 025
Inlet press., bar : 1.50
Test nozzle holder assembly : 1 688 901 019
Opening pressure, bar : 207...210
Orifice plate diameter mm : 0,8
Test lines : 1 680 750 067
Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar : 25...27
Prestroke mm : 3.60...3.70
: (3.55...3.75)
Rack travel in mm : 9.00...12.00

J01

Firing order : 1- 4- 2- 6- 8- 5
- 7- 3

Phasing : 0-45-090-135-180-225
-270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900
Rack travel in mm : 13.80...13.90
Del. quantity cm3/ : 36.8...37.1
100 s : (36.5...37.5)
Spread cm3 : 0.6
100 s : (1.0)

2nd speed rpm : 350.0
Rack travel in mm : 6.0...6.2
Del. quantity cm3/ : 1.5...2.1
100 s : (1.1...2.5)
Spread cm3 : 1.0
100 s : (1.4)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 600
Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 900
Del. quantity : 368.5...371.5
1000 : (365.0...375.0)
Spread cm3 : 6.00
1000 : (10.00)

RATED SPEED

1st version
Setting point:
Speed rpm : 600
Rack travel in mm : 16.0

Testing:
1st rack travel in: 12.80
Speed rpm : 970...985
2nd rack travel in: 4.00
Speed rpm : 1040...1070

4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack trave: 7.60
Speed rpm : 350
Rack travel in mm : 6.00...6.20
Rack travel in mm : 2.00
Speed rpm : 360...400

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.80
Speed rpm : 970...985

INTERMEDIATE RATED SPEED
Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100

Remarks:
:

APPLICATION
Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 14,5 d
Edition : 04.11.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 648 850

Injection pump
Pump designation : PE8P120AS20LS7818
EP type number : 0 412 628 830
Governor
Governor design. : RQV250...1150PA860
Governor no. : 0 421 813 626

Customer-spec. information
Customer : MAN

Engine : D2848LXE 40

1st version kW : 500.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.60...4.70
 : (4.55...4.75)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.50...13.60

Del. quantity cm³/ : 28.9...29.1

100 s: (28.6...29.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250
Rack travel in mm : 7.30...7.50
Del. quantity cm³/ : 52.0...60.0 *

100 s: (-)

3rd speed rpm : 500
Rack travel in mm : 8.20...8.40
Del. quantity cm³/ : 12.5 **

100 s: (-)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.20

2nd speed rpm : 450
travel mm : 3.50...4.10

3rd speed rpm : 850
travel mm : 6.50...6.90

4th speed rpm : 1150
travel mm : 8.40...8.60

5th speed rpm : 1450
travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1

Speed rpm : 1150
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150
Aneroid pressure h: 1600
Del.quantity : 289.0...291.0
1000 : (286.0...294.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 62...70

Testing:

1st rack travel in: 12.50
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1360...1390
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16

Testing:

Speed rpm : 100
Minimum rack travel: 8.90
Speed rpm : 250
Rack travel in mm : 7.30...7.50
Rack travel in mm : 2.00
Speed rpm : 425...485

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1600
Rack travel mm : 13.50...13.60

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 8.90...9.10

2nd pressure hPa : 250

Rack travel in m: 9.30...9.40

3rd pressure hPa : 900

Rack travel in m: 11.90...12.20

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 149.0...151.0
1000 s: (146.0...154.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.50
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0 *
1000 s: (-)

LOW IDLE

Speed rpm : 500
Rack travel in mm : <7.50
Del.quantity cm³/ : <50.0 **
1000 s: (-)

Remarks:

: MAN-NR. 7927

* applies to cylinders 2, 3, 4 and 8

** applies for cylinders 1, 5, 6, and 7

APPLICATION
Ship

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 14,5 e
Edition : 04.11.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 648 851

Injection pump
Pump designation : PE8P120A520LS7818
EP type number : 0 412 628 830
Governor
Governor design. : RQV250...1150PA902
Governor no. : 0 421 813 720

Customer-spec. information
Customer : MAN

Engine : D2848LXE 40

1st version kW : 500.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6,00x1,50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 4.60...4.70
 : (4.55...4.75)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.50...13.60

Del. quantity cm³/ : 28.9...29.1

100 s: (28.6...29.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250

Rack travel in mm : 7.30...7.50

Del. quantity cm³/ : 52.0...60.0 *

100 s: (-)

3rd speed rpm : 500

Rack travel in mm : 8.20...8.40

Del. quantity cm³/ : 125.0 **

100 s: (-)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.40...1.60

2nd speed rpm : 450
travel mm : 3.40...4.00

3rd speed rpm : 850
travel mm : 6.30...6.90

4th speed rpm : 1150
travel mm : 9.40...9.60

5th speed rpm : 1450
travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1210

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150
Aneroid pressure h: 1600
Del. quantity : 289.0...291.0
1000 : (286.0...294.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 57...65

Testing:

1st rack travel in: 12.50
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1280...1310
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 19...27

Testing:

Speed rpm : 100
Minimum rack travel: 8.90
Speed rpm : 250
Rack travel in mm : 7.30...7.50
Rack travel in mm : 2.00
Speed rpm : 430...490

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1600
Rack travel mm : 13.50...13.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.10
2nd pressure hPa : 250
Rack travel in m: 9.30...9.40
3rd pressure hPa : 900
Rack travel in m: 11.90...12.20

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 149.0...151.0
1000 s: (146.0...154.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.50
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 100.0...120.0 *
1000 s: (-)

LOW IDLE

Speed rpm : 500
Rack travel in mm : <7.50
Del. quantity cm³/ : <50.0 **
1000 s: (-)

Remarks:

: MAN-NR. 7744

* applies to cylinders 2, 3, 4 and 8
** applies for cylinders 1, 5, 6, and 7
APPLICATION
Ship

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 18,3 m
 Edition : 05.08.88
 Replaces : 14.8.87
 Test oil : ISO-4113

Combination no. : 0 402 649 803

Injection pump
 Pump designation : PE10P120A32OLS7809-1
 EP type number : 0 412 629 801
 Governor
 Governor design. : RQV300..1050PA797-4
 Governor no. : 0 421 813 654

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : 0M443 LA

1st version kW : 401.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 130...150

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 10- 9- 4- 1- 8- 7
 - 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
 216-261-288-333
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 600

 Rack travel in mm : 14.70...14.90

 Del. quantity cm³/ : 21.9...22.1

 100 s: (21.6...22.4)

 Spread cm³ : 0.5

 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.6...6.8
 Del. quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.20...1.40
 2nd speed rpm : 600
 travel mm : 4.90...5.10
 3rd speed rpm : 800
 travel mm : 5.80...6.10
 4th speed rpm : 1075
 travel mm : 7.40...7.70
 5th speed rpm : 1150
 travel mm : 8.00...8.80

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1100
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 900
Del. quantity : 219.0...221.0
1000 : (216.0...224.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 36...44

Testing:
1st rack travel in: 14.10
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 9...17

Testing:
Speed rpm : 200
Minimum rack travel: 8.60
Speed rpm : 300
Rack travel in mm : 6.60...6.80

CONSTANT REGULATION
Speed rpm : 300...400

TORQUE CONTROL
2nd speed rpm : 1050
Rack travel in m: 15.10...15.30
3rd speed rpm : 800
Rack travel in m: 15.50...15.70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 14.70...14.90

Measurement
Speed 1/min : 600

1st pressure hPa : 400
Rack travel in m: 12.10...12.30
2nd pressure hPa : 600
Rack travel in m: 13.60...13.80
3rd pressure hPa : 960

JOE

Rack travel in m: 14.80...14.90
4th pressure hPa : 1100
Rack travel in m: 15.20...15.40
5th pressure hPa : -
Rack travel in m: 11.20...11.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1300
Speed rpm : 1050
Del. quantity cm³/ : 229.0...232.0
1000 s: (226.0...235.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1300
Speed rpm : 800
Del. quantity cm³/ : 234.0...238.0
1000 s: (231.0...241.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 133.0...135.0
1000 s: (130.0...138.0)
Spread cm³ : 8.00
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.10
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 230.0...250.0
1000 s: (226.0...254.0)

Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 18,3 m 1
 Edition : 02.09.88
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 649 804

Injection pump
 Pump designation : PE10P120A32QLS7809-1
 EP type number : 0 412 629 801
 Governor
 Governor design. : RQV300..1050PA797-6
 Governor no. : 0 421 813 705

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM443 A

1st version kW : 331.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 130...150

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 10- 9- 4- 1- 8- 7
 : - 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
 216-261-288-333
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 1050

 Rack travel in mm : 12.60...12.70

 Del. quantity cm³/ : 18.7...19.0

 100 s: (18.4...19.3)

 Spread cm³ : 0.5

 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.4...6.7
 Del. quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.20...1.40
 2nd speed rpm : 600
 travel mm : 4.90...5.10
 3rd speed rpm : 800
 travel mm : 5.80...6.10
 4th speed rpm : 1075
 travel mm : 7.40...7.70
 5th speed rpm : 1150
 travel mm : 8.00...8.80

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1100
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050
Aneroid pressure h : 900
Del. quantity : 187.0...190.0
1000 : (184.0...193.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 49...57

Testing:

1st rack travel in: 11.60
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:

Speed rpm : 200
Minimum rack trave: 8.60
Speed rpm : 300
Rack travel in mm : 6.40...6.70

CONSTANT REGULATION

Speed rpm : 300...400

TORQUE CONTROL

Dimension a mm : 1.00
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.60...12.70
2nd speed rpm : 750
Rack travel in m: 13.60...13.90

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.30...11.70

Measurement

Speed 1/min : 500

1st pressure hPa : 250
Rack travel in m: 11.60...11.80
2nd pressure hPa : 380

Rack travel in m: 13.00...13.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 600
Del. quantity cm³/ : 202.0...206.0
1000 s: (199.0...209.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 144.0...146.0
1000 s: (141.0...149.0)
Spread cm³ : 8.00
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 18,3 p
 Edition : 26.08.88
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 649 805

Injection pump
 Pump designation : PE10P120A320LS7817
 EP type number : 0 412 629 803
 Governor
 Governor design. : RQ300/1250PA856-1
 Governor no. : 0 421 801 449

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM443 LA

1st version kW : 400.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 130...150

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 10- 9- 4- 1- 8- 7
 - 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
 216-261-288-333
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 600

 Rack travel in mm : 15.50...15.70

 Del. quantity cm³/ : 22.4...22.6

 100 s: (22.1...22.9)

Spread cm³ : 0.5

 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.6...6.8
 Del. quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 1050
 Del. quantity : 224.0...226.0
 1000 : (221.0...229.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.40
Speed rpm : 1295...1310
2nd rack travel in: 4.00
Speed rpm : 1390...1420
4th rack travel in: 1500
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.7

Testing:

Speed rpm : 200
Minimum rack travel: 8.10
Speed rpm : 300
Rack travel in mm : 6.60...6.80
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?
2nd speed rpm : 1250
Rack travel in m: 15.40...15.60
3rd speed rpm : 800
Rack travel in m: 16.10...16.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1050
Rack travel mm : 16.10...16.30

Measurement

Speed 1/min : 600
1st pressure hPa : 400
Rack travel in m: 13.20...13.40
2nd pressure hPa : 750
Rack travel in m: 15.20...15.40
3rd pressure hPa : 1250
Rack travel in m: 16.20...16.40
4th pressure hPa : 1500
Rack travel in m: 16.60...16.80
5th pressure hPa : -
Rack travel in m: 11.50...11.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1250
Del.quantity cm3/ : 222.0...226.0
1000 s: (219.0...229.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 800
Del.quantity cm3/ : 235.0...239.0
1000 s: (232.0...242.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 129.0...131.0
1000 s: (126.0...134.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.40
Speed rpm : 1295...1310

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 230.0...250.0
1000 s: (226.0...254.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 18,2 e
Edition : 30.09.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 649 806

Injection pump
Pump designation : PE10P12QA52OLS7819
EP type number : 0 412 629 804
Governor
Governor design. : RQV300...1050PA896
Governor no. : 0 421 813 715

Customer-spec. information
Customer : MAN

Engine : D 2840 LF

1st version kW : 405.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1,50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.90...5.00
 : (4.85...5.05)
Rack travel in mm : 9.00...12.00
Firing order : 10- 9- 4- 1- 8- 7
 - 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
 216-261-288-333
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.40...11.50

Del. quantity cm³/ : 23.3...23.5

100 s: (23.0...23.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 5.0...5.2
Del. quantity cm³/ : 1.2...1.8
100 s: (0.9...2.1)
Spread cm³ : 0.8
100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.00...1.40
2nd speed rpm : 500
travel mm : 3.10...3.70
3rd speed rpm : 800
travel mm : 5.50...5.90
4th speed rpm : 1050
travel mm : 7.60...7.80

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1125
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 750
Aneroid pressure h: 1000

Del. quantity : 233.0...235.0
1000 : (230.0...238.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:
1st rack travel in: 10.00
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20

Testing:
Speed rpm : 100
Minimum rack travel: 6.60
Speed rpm : 300
Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

Speed rpm : 320...435

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.10...11.20
2nd speed rpm : 750
Rack travel in m: 11.40...11.50
3rd speed rpm : 900
Rack travel in m: 11.30...11.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.40...11.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.20...9.40
2nd pressure hPa : 400
Rack travel in m: 9.60...9.70
3rd pressure hPa : 600

Rack travel in m: 10.40...10.70

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1050
Del. quantity cm³/ : 220.0...224.0
1000 s: (217.0...227.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 156.0...158.0
1000 s: (153.0...161.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.00...5.20
Del. quantity cm³/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 21,9 y 1
 Edition : 04.11.88
 Replaces : 21.8.87
 Test oil : ISO-4113

Combination no. : 0 402 670 801

Injection pump
 Pump designation : PE12P120A32QLS7807
 EP type number : 0 412 620 806
 Governor
 Governor design. : RSV350...750POA825-1
 Governor no. : 0 421 833 248

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 444 LA

1st version kW : 407.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow quantity min. 1/h: 150...170

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 12- 1- 5- 9- 8- 3
 - 4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-
 180-225-240-285-300-
 345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 15.80...15.90

Del. quantity cm³/ : 24.1...24.3

100 s: (23.8...24.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.4...5.6

Del. quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 241.0...243.0

1000 : (238.0...246.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 23...31

Testing:

1st rack travel in: 14.80
Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 775...788
4th rack travel in: 900
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 9...17
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 15.00
Speed rpm : 350
Rack travel in mm : 5.40...5.60

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.10
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

:

Observe VDT-I-420/120

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,0 u4
Edition : 01.09.88
Replaces : 15.6.87
Test oil : ISO-4113

Combination no. : 0 402 676 800

Injection pump
Pump designation : PE6P120A72ORS7001
EP type number : 0 412 626 800
Governor
Governor design. : RSV350...1100P1/481
Governor no. : 0 421 833 121

Customer-spec. information
Customer : SAAB-SCANIA

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6,00x1,50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 5,00...5,10
 : (4,95...5,15)

Rack travel in mm : 9,00...12,00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.20...13.30

Del. quantity cm³/ : 19.9...20.1
100 s : (19.6...20.4)

Spread cm³ : 0.6
100 s : (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 4.4...4.6

Del. quantity cm³/ : 1.3...1.7
100 s : (-)

Spread cm³ : 0.3
100 s : (0.6)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Del. quantity : 199.0...201.0
1000 : (196.0...204.0)

Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:
1st rack travel in: 12.20
Speed rpm : 1090...1100

2nd rack travel in: 4.00
Speed rpm : 1170...1200

4th rack travel in: 1300
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 27...35
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.0
Speed rpm : 350
Rack travel in mm : 4.40...4.60
Rack travel in mm : 2.00
Speed rpm : 440...500

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1000
Del. quantity cm3/ : 193.0...201.0
1000 s: (190.0...204.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 240.0...290.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.40...4.60
Del. quantity cm3/ : 13.0...17.0
1000 s: (-)
Spread cm3 : 3.00
1000 s: (6.00)

Remarks:

: DS11 40, 41, 42
: DSI11 40, 44

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over
on Aug. 18, 1983
Start of delivery - engine:
DS 11 - 17° before TDC
DSI 11 - 16° before TDC
Firing sequence of engine:
1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 g 4
Edition : 09.09.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 678 809
Injection pump
Pump designation : PE8P12QA32QLS7801-2
EP type number : 0 412 628 825
Governor
Governor design. : RSV450...1050POA540
Governor no. : 0 421 833 302

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM442LA

1st version kW : 320.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (4.15...5.35)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5-
4- 1

Phasing : 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)
Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.40...14.50

Del. quantity cm³/ : 21.2...21.5

100 s: (20.9...21.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 450.0
Rack travel in mm : 4.9...5.2
Del. quantity cm³/ : 1.6...2.2
100 s: (1.3...2.5)
Spread cm³ : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 750
Del. quantity : 212.0...215.0
1000 : (209.0...218.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 36...44

Testing:

1st rack travel in: 14.00
Speed rpm : 1060...1070
2nd rack travel in: 4.00
Speed rpm : 1110...1130
4th rack travel in: 1400
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 450
Rack travel in mm : 4.90...5.20
Rack travel in mm : 2.00
Speed rpm : 460...520

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1030
Rack travel in m: 15.00...15.20
2nd speed rpm : 850
Rack travel in m: 15.70...15.90
3rd speed rpm : 925
Rack travel in m: 15.40...15.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 750
Rack travel mm : 14.50...14.600

Measurement

Speed 1/min : 600

1st pressure hPa : 450
Rack travel in m: 12.80...13.00
2nd pressure hPa : 550
Rack travel in m: 13.70...13.90
3rd pressure hPa : 950
Rack travel in m: 14.90...15.10
4th pressure hPa : 1250
Rack travel in m: 15.70...15.90
5th pressure hPa : -

Rack travel in m: 11.60...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1250
Speed rpm : 1030
Del. quantity cm³/ : 230.0...232.0
1000 s: (227.0...235.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1250
Speed rpm : 850
Del. quantity cm³/ : 242.0...245.0
1000 s: (239.0...248.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 154.0...156.0
1000 s: (151.0...159.0)
Spread cm³ : 8.00
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 14.00
Speed rpm : 1060...1070

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

APPLICATION
Forage harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 g 5
 Edition : 09.09.88
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 678 810

Injection pump
 Pump designation : PE8P120A320LS7801-2
 EP type number : 0 412 628 825
 Governor
 Governor design. : RSV450...1050POA541
 Governor no. : 0 421 833 303

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM442A

1st version kW : 260.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (4.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1030

 Rack travel in mm : 12.70...12.80

 Del. quantity cm³/ : 18.1...18.3

 100 s: (17.8...18.6)

Spread cm³ : 0.5

 100 s: (0.9)

2nd speed rpm : 450.0
 Rack travel in mm : 4.9...5.2
 Del. quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1030
 Aneroid pressure h: 1100
 Del. quantity : 181.0...183.0
 1000 : (178.0...186.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 36...44

Testing:

1st rack travel in: 11.70
Speed rpm : 1060...1070
2nd rack travel in: 4.00
Speed rpm : 1110...1130
4th rack travel in: 1400
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 450
Rack travel in mm : 4.90...5.20
Rack travel in mm : 2.00
Speed rpm : 460...520

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1030
Rack travel in m: 12.70...12.80
2nd speed rpm : 950
Rack travel in m: 13.10...13.30
3rd speed rpm : 800
Rack travel in m: 13.80...14.00
4th speed rpm : 700
Rack travel in m: 14.40...14.60

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.20...11.50

Measurement

Speed 1/min : 500

1st pressure hPa : 420
Rack travel in m: 11.90...12.10
2nd pressure hPa : 600
Rack travel in m: 13.60...13.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100
Speed rpm : 700
Del. quantity cm³/ : 213.0...217.0
1000 s: (210.0...220.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 143.0...145.0
1000 s: (140.0...148.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1060...1070

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 180.0...200.0
1000 s: (176.0...204.0)

Remarks:

APPLICATION

Forage harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 c
Edition : 05.08.88
Replaces : 10.85
Test oil : ISO-4113

Combination no. : 0 402 745 800

Injection pump
Pump designation : PESSP12GA72QLS7101
EP type number : 0 412 725 800
Governor
Governor design. : RQ300/105QPA690
Governor no. : 0 421 801 234

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM429 LA

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.80...13.90

Del. quantity cm³/ : 20.1...20.3

100 s: (19.8...20.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.4

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 700

Del. quantity : 201.0...203.0

1000 : (198.0...206.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.80

Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1145...1185
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.1

Testing:

Speed rpm : 100
Minimum rack travel: 7.70
Speed rpm : 300
Rack travel in mm : 6.00...6.20
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 12.00...12.30

Measurement

Speed 1/min : 500

1st pressure hPa : 240
Rack travel in m: 12.30...12.40
2nd pressure hPa : 350
Rack travel in m: 13.30...13.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 600
Del. quantity cm³/ : 197.0...201.0
1000 s: (194.0...204.0)
Spread cm³ : 8.00
1000 s: (12.0)

Aneroid pressure h: 700
Speed rpm : 900
Del. quantity cm³/ : 204.0...208.0
1000 s: (201.0...211.0)
Spread cm³ : 8.00
1000 s: (12.0)

Aneroid pressure h: -
Speed rpm : 500

Del. quantity cm³/ : 157.0...159.0
1000 s: (154.0...162.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.80
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 160.0...180.0
1000 s: (156.0...184.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 m
 Edition : 07.10.88
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 745 805

Injection pump
 Pump designation : PESSP120A72QLS7160
 EP type number : 0 412 725 802
 Governor
 Governor design. : RQ300/1050PA774-2
 Governor no. : 0 421 801 450

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM449 A

1st version kW : 184,0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.10...13.30

Del. quantity cm³/ : 19.6...19.8

100 s: (19.3...20.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.6

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 650

Del. quantity : 196.0...198.0

1000 : (193.0...201.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.60
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.4

Testing:

Speed rpm : 200
Minimum rack trave: 8.30
Speed rpm : 300
Rack travel in mm : 6.30...6.60
Rack travel in mm : 2.00
Speed rpm : 365...405

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.60...13.80
2nd speed rpm : 750
Rack travel in m: 14.00...14.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 650
Rack travel mm : 13.10...13.30

Measurement

Speed 1/min : 600
1st pressure hPa : 250
Rack travel in m: 11.20...11.40
2nd pressure hPa : 400
Rack travel in m: 12.50...12.70
3rd pressure hPa : 750
Rack travel in m: 13.20...13.30
4th pressure hPa : 1200
Rack travel in m: 14.00...14.20
5th pressure hPa : -
Rack travel in m: 10.80...11.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm3/ : 208.0...211.0
1000 s: (205.0...214.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm3/ : 216.0...220.0
1000 s: (213.0...223.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 150.0...152.0
1000 s: (147.0...155.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : BAO 15,9 b
 Edition : 05.08.88
 Replaces : 1.85
 Test oil : ISO-4113
 Combination no. : 0 402 746 803
 Injection pump
 Pump designation : PES6P120A32ORS7105
 EP type number : 0 412 726 800
 Governor
 Governor design. : RQV400...750PA730-1
 Governor no. : 0 421 813 487

Customer-spec. information
 Customer : BAUDOUIN

Engine : 6P15-2

1st version kW : 450.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 074

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.80...13.90

Del. quantity cm³/ : 41.9...42.1

100 s: (41.6...42.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 400.0

Rack travel in mm : 3.6...4.0

Del. quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 419.0...421.0

1000 : (416.0...424.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Testing:

1st rack travel in: 12.80

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 780...793

4th rack travel in: 900

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 4...12

Testing:

Speed rpm : 100

Minimum rack trave: 5.30

Speed rpm : 400
Rack travel in mm : 3.70...3.90
Rack travel in mm : 2.00

START CUT-OUT

Speed 1/min : 340 (360)

LOW IDLE

Speed rpm : 400
Rack travel in mm : 3.60...4.00
Del. quantity cm³/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

APPLICATION
Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 a
Edition : 07.10.88
Replaces : 8.4.88
Test oil : ISO-4113

Combination no. : 0 402 746 810

Injection pump
Pump designation : PES6P120A72ORS713S
EP type number : 0 412 726 807
Governor
Governor design. : RQV32S...900PA848K
Governor no. : 0 421 815 168

Customer-spec. information

Customer : MACK

Engine : E6-350 4VH

1st version kW : 261.0
Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 101

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

K01

Prestroke mm : 2.75...2.85
: (2.70...2.90)
Rack travel in mm : 10.30...10.70
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 13.90...14.00

Del. quantity cm³/ : 23.6...23.8

100 s: (23.3...24.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.0...4.2

Del. quantity cm³/ : 3.2...3.8

100 s: (3.0...4.0)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
travel mm : 1.20...1.40

2nd speed rpm : 450
travel mm : 3.10...3.30

3rd speed rpm : 850
travel mm : 5.90...6.10

4th speed rpm : 1000
travel mm : 7.50...7.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 900

Del. quantity : 236.5...238.5

1000 : (233.5...241.5)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 53...61

Testing:

1st rack travel in: 12.90
Speed rpm : 950...960
2nd rack travel in: 4.00
Speed rpm : 1075...1105
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 7...15

Testing:

Speed rpm : 275
Minimum rack travel: 5.50
Speed rpm : 325
Rack travel in mm : 4.00...4.20

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 13.90...14.00
2nd speed rpm : 625
Rack travel in m: 14.10...14.20
3rd speed rpm : 800
Rack travel in m: 14.00...14.10
4th speed rpm : 500
Rack travel in m: 0.00...13.50

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 625
Pressure hPa : 900
Rack travel mm : 14.10...14.20

Measurement

Speed 1/min : 625

1st pressure hPa : -
Rack travel in m: 8.30...8.70
2nd pressure hPa : 275
Rack travel in m: 10.00...10.10
3rd pressure hPa : 570
Rack travel in m: 12.30...12.70

K02

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 625
Del. quantity cm³/ : 257.0...263.0
1000 s: (254.0...266.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 136.0...140.0
1000 s: (134.0...142.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.90
Speed rpm : 950...960

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...180.0
1000 s: (130.0...190.0)
Rack travel in mm : 8.30...8.70

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.00...4.20
Del. quantity cm³/ : 32.0...38.0
1000 s: (30.0...40.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Test sheet : MAC 11,1 a2
 Edition : 07.10.88
 Replaces : 15.4.88
 Test oil : ISO-4113

Combination no. : 0 402 746 815

Injection pump
 Pump designation : PES6P120A72ORS7135
 EP type number : 0 412 726 807
 Governor
 Governor design. : RQV325...850PA848-2K
 Governor no. : 0 421 815 170

Customer-spec. information
 Customer : MACK

Engine : E6-275 4VH

1st version kW : 202.0
 Rated speed : 1700

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.30...10.70
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.00...12.10

Del. quantity cm³/ : 18.1...18.3

100 s: (17.8...18.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.5...4.7

Del. quantity cm³/ : 3.2...3.8

100 s: (3.0...4.0)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.20...1.40

2nd speed rpm : 450
 travel mm : 2.80...3.10

3rd speed rpm : 850
 travel mm : 6.20...6.40

4th speed rpm : 1000
 travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1110

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 900

Del. quantity : 181.0...183.0

1000 : (178.0...186.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 52...60

Testing:
1st rack travel in: 11.00
Speed rpm : 900...910
2nd rack travel in: 4.00
Speed rpm : 1025...1055
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 7...15

Testing:
Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 325
Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 12.00...12.10
2nd speed rpm : 600
Rack travel in m: 12.60...12.70
3rd speed rpm : 700
Rack travel in m: 12.50...12.70
4th speed rpm : 500
Rack travel in m: 0.00...12.40

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 12.60...12.70

Measurement
Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 9.50...9.90
2nd pressure hPa : 215
Rack travel in m: 10.30...10.40
3rd pressure hPa : 360
Rack travel in m: 11.50...11.90

K04

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 600
Del. quantity cm³/ : 210.5...216.5
1000 s: (207.5...219.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 144.0...148.0
1000 s: (142.0...150.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.00
Speed rpm : 900...910

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 160.0...200.0
1000 s: (150.0...210.0)
Rack travel in mm : 9.50...9.90

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.50...4.70
Del. quantity cm³/ : 32.0...38.0
1000 s: (30.0...40.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:
Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 a3
Edition : 07.10.88
Replaces : 7.1.88
Test oil : ISO-4113

Combination no. : 0 402 746 816

Injection pump
Pump designation : PES6P120A72ORS7135
EP type number : 0 412 726 807
Governor
Governor design. : RQV325...875PA848-3K
Governor no. : 0 421 815 171

Customer-spec. information

Customer : MACK

Engine : EM6-250L 4VH

1st version kW : 186.0
Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
Rack travel in mm : 10.30...10.70
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875

Rack travel in mm : 10.80...10.90

Del. quantity cm³/ : 16.3...16.5

100 s : (16.0...16.8)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.5...4.7

Del. quantity cm³/ : 3.9...4.5

100 s : (3.7...4.7)

Spread cm³ : 0.8

100 s : (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
travel mm : 1.20...1.40

2nd speed rpm : 450
travel mm : 2.80...3.20

3rd speed rpm : 850
travel mm : 6.20...6.40

4th speed rpm : 1000
travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875

Aneroid pressure h : 1200

Del. quantity : 163.0...165.0

1000 : (160.0...168.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 52...60

Testing:
1st rack travel in: 9.80
Speed rpm : 925...935
2nd rack travel in: 4.00
Speed rpm : 1010...1040
4th rack travel in: 1100
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17

Testing:
Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 325
Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 10.80...10.90
2nd speed rpm : 510
Rack travel in m: 13.00...13.20
3rd speed rpm : 700
Rack travel in m: 11.60...11.80
4th speed rpm : 550
Rack travel in m: 0.00...13.10

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 510
Pressure hPa : 1200
Rack travel mm : 13.00...13.20

Measurement
Speed 1/min : 510

1st pressure hPa : -
Rack travel in m: 9.10...9.50
2nd pressure hPa : 215
Rack travel in m: 10.30...10.40
3rd pressure hPa : 435
Rack travel in m: 12.20...12.60

K06

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 510
Del. quantity cm³/ : 240.0...246.0
1000 s: (237.0...249.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 146.0...150.0
1000 s: (144.0...152.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.80
Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 165.0...205.0
1000 s: (155.0...215.0)
Rack travel in mm : 9.10...9.50

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.50...4.70
Del. quantity cm³/ : 39.0...45.0
1000 s: (37.0...47.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:
Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 a4
Edition : 07.10.88
Replaces : 12.11.87
Test oil : ISO-4113

Combination no. : 0 402 746 817

Injection pump
Pump designation : PES6P120A720RS7135
EP type number : 0 412 726 807
Governor
Governor design. : RQV325...900PA848-4K
Governor no. : 0 421 815 173

Customer-spec. information

Customer : MACK

Engine : EC6-350 4VH

1st version kW : 261.0
Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
: (2.70...2.90)
Rack travel in mm : 10.30...10.70
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 14.60...14.70

Del. quantity cm³/ : 24.1...24.3

100 s: (23.8...24.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.9...5.1

Del. quantity cm³/ : 3.9...4.5

100 s: (3.7...4.7)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
travel mm : 1.20...1.40

2nd speed rpm : 450
travel mm : 3.10...3.30

3rd speed rpm : 850
travel mm : 5.90...6.10

4th speed rpm : 1000
travel mm : 7.50...7.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 1200

Del. quantity : 241.5...243.5

1000 : (238.5...246.5)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 53...61

Testing:

1st rack travel in: 13.60
Speed rpm : 950...960
2nd rack travel in: 4.00
Speed rpm : 1090...1120
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 7...15

Testing:

Speed rpm : 275
Minimum rack travel: 6.40
Speed rpm : 325
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900
Rack travel in m: 14.60...14.70
2nd speed rpm : 625
Rack travel in m: 14.90...15.10
3rd speed rpm : 800
Rack travel in m: 14.70...14.80
4th speed rpm : 500
Rack travel in m: 0.00...14.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 625
Pressure hPa : 1200
Rack travel mm : 14.90...15.10

Measurement

Speed 1/min : 625

1st pressure hPa : -
Rack travel in m: 8.70...9.10
2nd pressure hPa : 280
Rack travel in m: 10.40...10.50
3rd pressure hPa : 650
Rack travel in m: 13.30...13.70

K08

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 625
Del. quantity cm³/ : 265.0...271.0
1000 s: (262.0...274.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 130.5...134.5
1000 s: (128.5...136.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.60
Speed rpm : 950...960

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...180.0
1000 s: (130.0...190.0)
Rack travel in mm : 8.70...9.10

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.90...5.10
Del. quantity cm³/ : 39.0...45.0
1000 s: (37.0...47.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:
Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 a5
 Edition : 07.10.88
 Replaces : 12.11.87
 Test oil : ISO-4113

Combination no. : 0 402 746 818

Injection pump
 Pump designation : PES6P12QA72ORS7135
 EP type number : 0 412 726 807
 Governor
 Governor design. : RGV325...875PA848-5K
 Governor no. : 0 421 815 174

Customer-spec. information
 Customer : MACK

Engine : EM6-275L 4VH

1st version kW : 202.0
 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.30...10.70
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875

Rack travel in mm : 12.20...12.30

Del. quantity cm³/ : 19.0...19.2

100 s: (18.7...19.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.6...4.8

Del. quantity cm³/ : 3.7...4.3

100 s: (3.5...4.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40

2nd speed rpm : 450

travel mm : 2.80...3.10

3rd speed rpm : 850

travel mm : 6.20...6.40

4th speed rpm : 1000

travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1110

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875

Aneroid pressure h: 1200

Del. quantity : 190.0...192.0

1000 : (187.0...195.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 52...60

Testing:

1st rack travel in: 11.20
Speed rpm : 925...935
2nd rack travel in: 4.00
Speed rpm : 1030...1060
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17

Testing:

Speed rpm : 275
Minimum rack travel: 6.10
Speed rpm : 325
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 12.20...12.30
2nd speed rpm : 510
Rack travel in m: 14.10...14.30
3rd speed rpm : 700
Rack travel in m: 13.20...13.40
4th speed rpm : 400
Rack travel in m: 0.00...13.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 510
Pressure hPa : 1200
Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 510

1st pressure hPa : -
Rack travel in m: 9.40...9.60
2nd pressure hPa : 280
Rack travel in m: 10.60...10.70
3rd pressure hPa : 485
Rack travel in m: 12.70...13.30

K10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 510
Del. quantity cm³/ : 262.5...268.5
1000 s: (259.5...271.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 145.0...149.0
1000 s: (143.0...151.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 170.0...210.0
1000 s: (160.0...220.0)
Rack travel in mm : 9.40...9.60

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.60...4.80
Del. quantity cm³/ : 37.0...43.0
1000 s: (35.0...45.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 a6
Edition : 07.10.88
Replaces : 7.1.88
Test oil : ISO-4113
Combination no. : 0 402 746 819
Injection pump
Pump designation : PES6P120A72ORS7135
EP type number : 0 412 726 807
Governor
Governor design. : RQV325...875PA848-6K
Governor no. : 0 421 815 175

Customer-spec. information
Customer : MACK

Engine : EM6-225L 4VH
1st version kW : 165.0
Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
Overflow valve : 2 417 413 011
Inlet press., bar : 1.50
Test nozzle holder assembly : 1 688 901 101
Opening pressure, bar : 207...210
Orifice plate diameter mm : 0,6
Test lines : 1 680 750 008
Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar : 17...19

Prestroke mm : 2.75...2.85
(2.70...2.90)
Rack travel in mm : 10.30...10.70
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)
Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875
Rack travel in mm : 11.00...11.10
Del. quantity cm3/ : 15.8...16.0
100 s: (15.5...16.3)
Spread cm3 : 0.5
100 s: (0.9)

2nd speed rpm : 325.0
Rack travel in mm : 4.6...4.8
Del. quantity cm3/ : 3.8...4.4
100 s: (3.6...4.6)
Spread cm3 : 0.8
100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
travel mm : 1.20...1.40
2nd speed rpm : 450
travel mm : 2.80...3.10
3rd speed rpm : 850
travel mm : 6.20...6.40
4th speed rpm : 1000
travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1110
Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 875
Aneroid pressure h: 900
Del. quantity : 158.5...160.5
1000 : (155.5...163.5)

Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 52...60

Testing:
1st rack travel in: 10.00
Speed rpm : 925...935
2nd rack travel in: 4.00
Speed rpm : 1015...1045
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17

Testing:
Speed rpm : 275
Minimum rack travel: 6.10
Speed rpm : 325
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 11.00...11.10
2nd speed rpm : 510
Rack travel in m: 13.20...13.40
3rd speed rpm : 600
Rack travel in m: 12.50...12.70
4th speed rpm : 700
Rack travel in m: 11.80...12.00
5th speed rpm : 350
Rack travel in m: 0.00...13.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 510
Pressure hPa : 900
Rack travel mm : 13.20...13.40

Measurement

Speed 1/min : 510

1st pressure hPa : -
Rack travel in m: 8.50...8.90
2nd pressure hPa : 220
Rack travel in m: 9.70...9.80

3rd pressure hPa : 500
Rack travel in m: 12.00...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 510
Del. quantity cm3/ : 234.0...240.0
1000 s: (231.0...243.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm3/ : 131.0...135.0
1000 s: (129.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 135.0...175.0
1000 s: (125.0...185.0)
Rack travel in mm : 8.50...8.90

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.60...4.80
Del. quantity cm3/ : 38.0...44.0
1000 s: (36.0...46.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

:
Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 b5
 Edition : 07.10.88
 Replaces : 15.4.88
 Test oil : ISO-4113
 Combination no. : 0 402 746 820
 Injection pump
 Pump designation : PES6P120A72ORS713S
 EP type number : 0 412 726 807
 Governor
 Governor design. : RQV325...850PA878K
 Governor no. : 0 421 815 177

Customer-spec. information

Customer : MACK
 Engine : E6-275 4VH
 1st version kW : 202.0
 Rated speed : 1700

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 2 417 413 011
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.30...10.70
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

 Rack travel in mm : 12.00...12.10

 Del. quantity cm³/ : 18.1...18.3

 100 s: (17.8...18.6)

 Spread cm³ : 0.5

 100 s: (0.9)

2nd speed rpm : 325.0
 Rack travel in mm : 4.5...4.7
 Del. quantity cm³/ : 3.2...3.8
 100 s: (3.0...4.0)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.20...1.40
 2nd speed rpm : 450
 travel mm : 2.80...3.10
 3rd speed rpm : 850
 travel mm : 6.20...6.40
 4th speed rpm : 1000
 travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1110
 Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 850
 Aneroid pressure h: 900
 Del. quantity : 181.0...183.0
 1000 : (178.0...186.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 52...60

Testing:

1st rack travel in: 11.00
Speed rpm : 900...910
2nd rack travel in: 4.00
Speed rpm : 1025...1055
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 7...15

Testing:

Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 325
Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 850
Rack travel in m: 12.00...12.10
2nd speed rpm : 600
Rack travel in m: 12.60...12.70
3rd speed rpm : 700
Rack travel in m: 12.50...12.70
4th speed rpm : 500
Rack travel in m: 0.00...12.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 12.60...12.70

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 9.50...9.90
2nd pressure hPa : 215
Rack travel in m: 10.30...10.40
3rd pressure hPa : 360
Rack travel in m: 11.50...11.90

K14

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 600
Del. quantity cm³/ : 210.5...216.5
1000 s: (207.5...219.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 144.0...148.0
1000 s: (142.0...150.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 900...910

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 160.0...200.0
1000 s: (150.0...210.0)
Rack travel in mm : 9.50...9.90

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.50...4.70
Del. quantity cm³/ : 32.0...38.0
1000 s: (30.0...40.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 b1
Edition : 07.10.88
Replaces : 8.4.88
Test oil : ISO-4113

Combination no. : 0 402 746 822

Injection pump
Pump designation : PES6P120A72ORS7135
EP type number : 0 412 726 807
Governor
Governor design. : RQV325...900PA878-2K
Governor no. : 0 421 815 179

Customer-spec. information
Customer : MACK

Engine : E6-350 4VH

1st version kW : 261.0
Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 13.90...14.00

Del. quantity cm³/ : 23.6...23.8

100 s : (23.3...24.1)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.0...4.2

Del. quantity cm³/ : 3.2...3.8

100 s : (3.0...4.0)

Spread cm³ : 0.8

100 s : (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
travel mm : 1.20...1.40

2nd speed rpm : 450
travel mm : 3.10...3.30

3rd speed rpm : 850
travel mm : 5.90...6.10

4th speed rpm : 1000
travel mm : 7.50...7.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h : 900

Del. quantity : 236.5...238.5

1000 : (233.5...241.5)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 55...63

Testing:
1st rack travel in: 12.90
Speed rpm : 950...960
2nd rack travel in: 4.00
Speed rpm : 1075...1105
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 7...15

Testing:
Speed rpm : 275
Minimum rack travel: 5.50
Speed rpm : 325
Rack travel in mm : 4.00...4.20

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 13.90...14.00
2nd speed rpm : 625
Rack travel in m: 14.10...14.20
3rd speed rpm : 800
Rack travel in m: 14.00...14.10
4th speed rpm : 500
Rack travel in m: 0.00...13.50

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 625
Pressure hPa : 900
Rack travel mm : 14.10...14.20

Measurement
Speed 1/min : 625

1st pressure hPa : -
Rack travel in m: 8.30...8.70
2nd pressure hPa : 275
Rack travel in m: 10.00...10.10
3rd pressure hPa : 570
Rack travel in m: 12.30...12.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 625
Del. quantity cm³/ : 257.0...263.0
1000 s: (254.0...266.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 136.0...140.0
1000 s: (134.0...142.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.90
Speed rpm : 950...960

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...180.0
1000 s: (130.0...190.0)
Rack travel in mm : 8.30...8.70

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.00...4.20
Del. quantity cm³/ : 32.0...38.0
1000 s: (30.0...40.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:
Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 b2
 Edition : 07.10.88
 Replaces : 2.11.87
 Test oil : ISO-4113
 Combination no. : 0 402 746 823
 Injection pump
 Pump designation : PES6P120A72ORS7135
 EP type number : 0 412 726 807
 Governor
 Governor design. : RQV325...875PA878-3K
 Governor no. : 0 421 815 180

Customer-spec. information

Customer : MACK
 Engine : EM6-275L 4VH
 1st version kW : 202.0
 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 2 417 413 011
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.30...10.70
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875

 Rack travel in mm : 12.20...12.30

 Del. quantity cm³/ : 19.0...19.2

 100 s : (18.7...19.5)

 Spread cm³ : 0.5

 100 s : (0.9)

2nd speed rpm : 325.0
 Rack travel in mm : 4.6...4.8
 Del. quantity cm³/ : 3.7...4.3
 100 s : (3.5...4.5)
 Spread cm³ : 0.8
 100 s : (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.20...1.40
 2nd speed rpm : 450
 travel mm : 2.80...3.10
 3rd speed rpm : 850
 travel mm : 6.20...6.40
 4th speed rpm : 1000
 travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1110
 Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 875
 Aneroid pressure h: 1200
 Del. quantity : 190.0...192.0
 100) : (187.0...195.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 52...60

Testing:
1st rack travel in: 11.20
Speed rpm : 925...935
2nd rack travel in: 4.00
Speed rpm : 1030...1060
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17

Testing:
Speed rpm : 275
Minimum rack travel: 6.10
Speed rpm : 325
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 875
Rack travel in m: 12.20...12.30
2nd speed rpm : 510
Rack travel in m: 14.10...14.30
3rd speed rpm : 700
Rack travel in m: 13.20...13.40
4th speed rpm : 400
Rack travel in m: 0.00...13.80

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 510
Pressure hPa : 1200
Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 510

1st pressure hPa : -
Rack travel in m: 9.40...9.60
2nd pressure hPa : 280
Rack travel in m: 10.60...10.70
3rd pressure hPa : 485
Rack travel in m: 12.70...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 510
Del. quantity cm³/ : 262.5...268.5
1000 s: (259.5...271.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 145.0...149.0
1000 s: (143.0...151.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 170.0...210.0
1000 s: (160.0...220.0)
Rack travel in mm : 9.40...9.60

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.60...4.80
Del. quantity cm³/ : 37.0...43.0
1000 s: (35.0...45.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:
Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 b3
Edition : 07.10.88
Replaces : 7.1.88
Test oil : ISO-4113

Combination no. : 0 402 746 824

Injection pump
Pump designation : PES6P120A72ORS7135
EP type number : 0 412 726 807
Governor
Governor design. : RQV325...875PA878-4K
Governor no. : 0 421 815 181

Customer-spec. information
Customer : MACK

Engine : EM6-225L 4VH

1st version kW : 165.0
Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
Rack travel in mm : 10.30...10.70
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 15.8...16.0

100 s: (15.5...16.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.6...4.8

Del. quantity cm³/ : 3.8...4.4

100 s: (3.6...4.6)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
travel mm : 1.20...1.40

2nd speed rpm : 450
travel mm : 2.80...3.10

3rd speed rpm : 850
travel mm : 6.20...6.40

4th speed rpm : 1000
travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1110

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875

Aneroid pressure h: 900

Del. quantity : 158.5...160.5

1000 : (155.5...163.5)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 52...60

Testing:
1st rack travel in: 10.00
Speed rpm : 925...935
2nd rack travel in: 4.00
Speed rpm : 1015...1045
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 9...17
Rack travel in mm : 4.7

Testing:
Speed rpm : 275
Minimum rack travel: 6.10
Speed rpm : 325
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION
Speed rpm : 325...520

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 11.00...11.10
2nd speed rpm : 510
Rack travel in m: 13.20...13.40
3rd speed rpm : 600
Rack travel in m: 12.50...12.70
4th speed rpm : 700
Rack travel in m: 11.80...12.00
5th speed rpm : 350
Rack travel in m: 0.00...13.20

Aneroid/Altitude
Compensator test

1st version
Setting
Speed rpm : 510
Pressure hPa : 900
Rack travel mm : 13.20...13.40

Measurement
Speed 1/min : 510

1st pressure hPa : -
Rack travel in m: 8.50...8.90
2nd pressure hPa : 220

K20

Rack travel in m: 9.70...9.80
3rd pressure hPa : 500
Rack travel in m: 12.00...12.40

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 510
Del. quantity cm³/ : 234.0...240.0
1000 s: (231.0...243.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 131.0...135.0
1000 s: (129.0...137.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.00
Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...175.0
1000 s: (125.0...185.0)
Rack travel in mm : 8.50...8.90

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.60...4.80
Del. quantity cm³/ : 38.0...44.0
1000 s: (36.0...46.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:
Because of flattening, set the spring
preload on new delivery-valve holders
to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 b6
 Edition : 07.10.88
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 825

Injection pump
 Pump designation : PES6P120A72ORS7135
 EP type number : 0 412 726 807
 Governor
 Governor design. : RQV325...900PA878-SK
 Governor no. : 0 421 815 182

Customer-spec. information
 Customer : MACK

Engine : EC6-350 4VH

1st version kW : 261,0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.30...10.70
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 14.60...14.70

Del. quantity cm³/ : 24.1...24.3

100 s : (23.8...24.6)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.9...5.1

Del. quantity cm³/ : 3.9...4.5

100 s : (3.7...4.7)

Spread cm³ : 0.8

100 s : (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.20...1.40

2nd speed rpm : 450
 travel mm : 3.10...3.30

3rd speed rpm : 850
 travel mm : 5.90...6.10

4th speed rpm : 1000
 travel mm : 7.50...7.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h : 1200

Del. quantity : 241.5...243.5

1000 : (238.5...246.5)

Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 53...61

Testing:
1st rack travel in: 13.60
Speed rpm : 950...960
2nd rack travel in: 4.00
Speed rpm : 1090...1120
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 7...15

Testing:
Speed rpm : 275
Minimum rack travel: 6.40
Speed rpm : 325
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 14.60...14.70
2nd speed rpm : 625
Rack travel in m: 14.90...15.10
3rd speed rpm : 800
Rack travel in m: 14.70...14.80
4th speed rpm : 500
Rack travel in m: 0.00...14.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 625
Pressure hPa : 1200
Rack travel mm : 14.90...15.10

Measurement
Speed 1/min : 625

1st pressure hPa : -
Rack travel in m: 8.70...9.10
2nd pressure hPa : 280
Rack travel in m: 10.40...10.50
3rd pressure hPa : 650
Rack travel in m: 13.30...13.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 625
Del. quantity cm3/ : 265.0...271.0
1000 s: (262.0...274.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm3/ : 130.5...134.5
1000 s: (128.5...136.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.60
Speed rpm : 950...960

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 140.0...180.0
1000 s: (130.0...190.0)
Rack travel in mm : 8.70...9.10

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.90...5.10
Del. quantity cm3/ : 39.0...45.0
1000 s: (37.0...47.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

:
Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 b4
 Edition : 07.10.88
 Replaces : 7.1.88
 Test oil : ISO-4113
 Combination no. : 0 402 746 826
 Injection pump
 Pump designation : PES6P120A72ORS7135
 EP type number : 0 412 726 807
 Governor
 Governor design. : RQV325...875PA878-6K
 Governor no. : 0 421 815 183

Customer-spec. information

Customer : MACK
 Engine : EM6-250L 4VH
 1st version kW : 186.0
 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 2 417 413 011
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.30...10.70
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875

 Rack travel in mm : 10.80...10.90

 Del. quantity cm³/ : 16.3...16.5

 100 s: (16.0...16.8)

 Spread cm³ : 0.5

 100 s: (0.9)

 2nd speed rpm : 325.0
 Rack travel in mm : 4.5...4.7
 Del. quantity cm³/ : 3.9...4.5
 100 s: (3.7...4.7)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.20...1.40
 2nd speed rpm : 450
 travel mm : 2.80...3.20
 3rd speed rpm : 850
 travel mm : 6.20...6.40
 4th speed rpm : 1000
 travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1100
 Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 875
 Aneroid pressure h: 1200
 Del. quantity : 163.0...165.0
 1000 : (160.0...168.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 52...60

Testing:
1st rack travel in: 9.80
Speed rpm : 925...935
2nd rack travel in: 4.00
Speed rpm : 1010...1040
4th rack travel in: 1100
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17

Testing:
Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 325
Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 10.80...10.90
2nd speed rpm : 510
Rack travel in m: 13.00...13.20
3rd speed rpm : 700
Rack travel in m: 11.60...11.80
4th speed rpm : 550
Rack travel in m: 0.00...13.10

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 510
Pressure hPa : 1200
Rack travel mm : 13.00...13.20

Measurement
Speed 1/min : 510

1st pressure hPa : -
Rack travel in m: 9.10...9.50
2nd pressure hPa : 215
Rack travel in m: 10.30...10.40
3rd pressure hPa : 435
Rack travel in m: 12.20...12.60

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 510
Del. quantity cm³/ : 240.0...246.0
1000 s: (237.0...249.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 146.0...150.0
1000 s: (144.0...152.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.80
Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 165.0...205.0
1000 s: (155.0...215.0)
Rack travel in mm : 9.10...9.50

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.50...4.70
Del. quantity cm³/ : 39.0...45.0
1000 s: (37.0...47.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:
Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 c
 Edition : 07.10.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 827
 Injection pump
 Pump designation : PES6P120A72ORS7148
 EP type number : 0 412 726 810
 Governor
 Governor design. : RQV325...875PA848-7K
 Governor no. : 0 421 815 176

Customer-spec. information
 Customer : MACK

Engine : EM6 300L 4VH

1st version kW : 224.0
 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.00...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875

Rack travel in mm : 11.10...11.20

Del. quantity cm³/ : 19.9...20.1

100 s : (19.6...20.4)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.5...4.7

Del. quantity cm³/ : 3.9...4.5

100 s : (3.7...4.7)

Spread cm³ : 0.8

100 s : (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40

2nd speed rpm : 450

travel mm : 2.50...2.80

3rd speed rpm : 600

travel mm : 4.10...4.30

4th speed rpm : 875

travel mm : 7.30...7.50

5th speed rpm : 1000

travel mm : 8.70...9.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1040

Rack travel in mm : 6.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875

Aneroid pressure h: 1500

Del. quantity : 199.0...201.0
1000 : (196.0...204.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 55...63

Testing:

1st rack travel in: 10.10
Speed rpm : 915...925
2nd rack travel in: 4.00
Speed rpm : 1000...1030
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 7...15

Testing:

Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 325
Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 875
Rack travel in m: 11.10...11.20
2nd speed rpm : 510
Rack travel in m: 16.50...16.70
3rd speed rpm : 700
Rack travel in m: 13.30...13.50
4th speed rpm : 600
Rack travel in m: 15.50...15.70
5th speed rpm : 450
Rack travel in m: 0.00...16.60

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 510
Pressure hPa : 1500
Rack travel mm : 16.50...16.70

Measurement

Speed 1/min : 510

1st pressure hPa : -
Rack travel in m: 8.30...8.70

2nd pressure hPa : 370
Rack travel in m: 10.70...10.80
3rd pressure hPa : 710
Rack travel in m: 14.40...14.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 510
Del. quantity cm³/ : 299.0...305.0
1000 s: (296.0...308.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 152.5...156.5
1000 s: (150.5...158.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (135.0...165.0)
Rack travel in mm : 8.30...8.70

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.50...4.70
Del. quantity cm³/ : 39.0...45.0
1000 s: (37.0...47.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 d
 Edition : 07.10.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 828
 Injection pump
 Pump designation : PES6P120A72ORS7148
 EP type number : 0 412 726 810
 Governor
 Governor design. : RQV325...875PA878-7K
 Governor no. : 0 421 815 184

Customer-spec. information

Customer : MACK
 Engine : EM6 300L 4VH
 1st version kW : 224.0
 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 2 417 413 011
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.00...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875

 Rack travel in mm : 11.10...11.20

 Del. quantity cm³/ : 19.9...20.1

 100 s : (19.6...20.4)

 Spread cm³ : 0.5

 100 s : (0.9)

2nd speed rpm : 325.0
 Rack travel in mm : 4.5...4.7
 Del. quantity cm³/ : 3.9...4.5
 100 s : (3.7...4.7)
 Spread cm³ : 0.8
 100 s : (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.20...1.40
 2nd speed rpm : 450
 travel mm : 2.50...2.80
 3rd speed rpm : 600
 travel mm : 4.10...4.30
 4th speed rpm : 875
 travel mm : 7.30...7.50
 5th speed rpm : 1000
 travel mm : 8.70...9.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1040
 Rack travel in mm : 6.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 875
 Aneroid pressure h: 1500

Del. quantity : 199.0...201.0
1000 : (196.0...204.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 55...63

Testing:
1st rack travel in: 10.10
Speed rpm : 915...925
2nd rack travel in: 4.00
Speed rpm : 1000...1030
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 7...15

Testing:
Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 325
Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 11.10...11.20
2nd speed rpm : 510
Rack travel in m: 16.50...16.70
3rd speed rpm : 700
Rack travel in m: 13.30...13.50
4th speed rpm : 600
Rack travel in m: 15.50...15.70
5th speed rpm : 450
Rack travel in m: 0.00...16.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 510
Pressure hPa : 1500
Rack travel mm : 16.50...16.70

Measurement

Speed 1/min : 510

1st pressure hPa : -
Rack travel in m: 8.30...8.70

2nd pressure hPa : 370
Rack travel in m: 10.70...10.80
3rd pressure hPa : 710
Rack travel in m: 14.40...14.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 510
Del. quantity cm³/ : 299.0...305.0
1000 s: (296.0...308.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 152.5...156.5
1000 s: (150.5...158.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (135.0...165.0)
Rack travel in mm : 8.30...8.70

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.50...4.70
Del. quantity cm³/ : 39.0...45.0
1000 s: (37.0...47.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:
Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 a7
Edition : 07.10.88
Replaces : 7.1.88
Test oil : ISO-4113
Combination no. : 0 402 746 829
Injection pump
Pump designation : PES6P120A72ORS7135
EP type number : 0 412 726 807
Governor
Governor design. : RQV325..1050PA848-8K
Governor no. : 0 421 815 185

Customer-spec. information

Customer : MACK
Engine : E6-270 4VH
1st version kW : 201.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
Overflow valve : 2 417 413 011
Inlet press., bar : 1.50
Test nozzle holder assembly : 1 688 901 101
Opening pressure, bar : 207...210
Orifice plate diameter mm : 0,6
Test lines : 1 680 750 008
Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
Rack travel in mm : 10.30...10.70
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.20...12.30

Del. quantity cm³/ : 17.4...17.6

100 s: (17.1...17.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0
Rack travel in mm : 4.9...5.1
Del. quantity cm³/ : 3.8...4.4
100 s: (3.6...4.6)
Spread cm³ : 0.8
100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
travel mm : 1.40...1.60
2nd speed rpm : 450
travel mm : 2.50...2.80
3rd speed rpm : 800
travel mm : 4.80...5.00
4th speed rpm : 1050
travel mm : 7.30...7.60
5th speed rpm : 1200
travel mm : 9.40...9.60

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1210
Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Aneroid pressure h: 900

Del. quantity : 174.0...176.0
1000 : (171.0...179.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 55...63

Testing:

1st rack travel in: 11.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18

Testing:

Speed rpm : 275
Minimum rack travel: 6.40
Speed rpm : 325
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 325...600

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 12.20...12.30
2nd speed rpm : 630
Rack travel in m: 12.00...12.20
3rd speed rpm : 925
Rack travel in m: 11.90...12.10
4th speed rpm : 800
Rack travel in m: 12.20...12.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 630
Pressure hPa : 900
Rack travel mm : 12.00...12.10

Measurement

Speed 1/min : 630

1st pressure hPa : -
Rack travel in m: 8.60...9.00
2nd pressure hPa : 270
Rack travel in m: 9.60...9.70

L02

3rd pressure hPa : 400
Rack travel in m: 11.00...11.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 630
Del. quantity cm³/ : 192.0...198.0
1000 s: (189.0...201.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 129.0...133.0
1000 s: (127.0...135.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...175.0
1000 s: (125.0...185.0)
Rack travel in mm : 8.60...9.00

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.90...5.10
Del. quantity cm³/ : 38.0...44.0
1000 s: (36.0...46.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1a10
 Edition : 07.10.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 831
 Injection pump
 Pump designation : PES6P120A72ORS7135
 EP type number : 0 412 726 807
 Governor
 Governor design. : RQV325..105OPA848-9K
 Governor no. : 0 421 815 187

Customer-spec. information

Customer : MACK
 Engine : EM6 300 2VH

1st version kW : 224.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 9 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar : 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.30...10.70
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.90...13.00

Del. quantity cm³/ : 19.9...20.1

100 s : (19.6...20.4)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.8...5.0

Del. quantity cm³/ : 3.8...4.4

100 s : (3.6...4.6)

Spread cm³ : 0.8

100 s : (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.40...1.60

2nd speed rpm : 450
 travel mm : 2.50...2.80

3rd speed rpm : 800
 travel mm : 4.80...5.00

4th speed rpm : 1050
 travel mm : 7.30...7.60

5th speed rpm : 1200
 travel mm : 9.40...9.60

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1200
 Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Aneroid pressure h : 900

Del. quantity : 199.0...201.0
1000 : (196.0...204.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 56...64

Testing:

1st rack travel in: 11.90
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18

Testing:

Speed rpm : 275
Minimum rack travel: 6.30
Speed rpm : 325
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

Speed rpm : 325...600

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 12.90...13.00
2nd speed rpm : 630
Rack travel in m: 13.00...13.10
3rd speed rpm : 500
Rack travel in m: 0.00...12.60

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 630
Pressure hPa : 900
Rack travel mm : 13.00...13.10

Measurement

Speed 1/min : 630

1st pressure hPa : -
Rack travel in m: 7.80...8.20
2nd pressure hPa : 190
Rack travel in m: 9.10...9.20
3rd pressure hPa : 410
Rack travel in m: 11.40...11.80

L04

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 630
Del. quantity cm³/ : 213.0...219.0
1000 s: (210.0...222.0)
Spread cm³ : 8.00
1000 s: (12.0)
Speed rpm : 400
Del. quantity cm³/ : 121.0...125.0
1000 s: (119.0...127.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 110.0...150.0
1000 s: (100.0...160.0)
Rack travel in mm : 7.80...8.20

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.80...5.00
Del. quantity cm³/ : 38.0...44.0
1000 s: (36.0...46.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

APPLICATION Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 a9
Edition : 07.10.88
Replaces : 7.3.88
Test oil : ISO-4113
Combination no. : 0 402 746 833
Injection pump
Pump designation : PES6P120A72ORS7135
EP type number : 0 412 726 807
Governor
Governor design. : RQV325...97SPA848-11
K
Governor no. : 0 421 815 190

Customer-spec. information
Customer : MACK

Engine : E6-350 2VH

1st version kW : 257.0
Rated speed : 1950

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

LOS

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
Rack travel in mm : 10.30...10.70
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 975

Rack travel in mm : 14.10...14.20

Del. quantity cm³/ : 23.0...23.2

100 s: (22.7...23.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.5...4.7

Del. quantity cm³/ : 3.8...4.4

100 s: (3.6...4.6)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
travel mm : 1.40...1.60

2nd speed rpm : 450
travel mm : 2.50...2.80

3rd speed rpm : 800
travel mm : 4.80...5.00

4th speed rpm : 1050
travel mm : 7.30...7.60

5th speed rpm : 1200
travel mm : 9.40...9.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1190

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 975

Aneroid pressure h: 900
Del. quantity : 230.5...232.5
1000 : (227.5...235.5)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 55...63

Testing:

1st rack travel in: 13.10
Speed rpm : 1015...1025
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18

Testing:

Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 325
Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

Speed rpm : 325...600

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 975
Rack travel in m: 14.10...14.20
2nd speed rpm : 700
Rack travel in m: 13.70...13.90
3rd speed rpm : 600
Rack travel in m: 0.00...13.30

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 700
Pressure hPa : 900
Rack travel mm : 13.80...13.90

Measurement

Speed 1/min : 700

1st pressure hPa : -
Rack travel in m: 7.80...8.20
2nd pressure hPa : 240
Rack travel in m: 9.30...9.40
3rd pressure hPa : 510

L06

Rack travel in m: 12.20...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 700
Del. quantity cm³/ : 237.0...233.0
1000 s: (224.0...236.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 125.0...129.0
1000 s: (123.0...131.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.10
Speed rpm : 1015...1025

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 110.0...150.0
1000 s: (100.0...160.0)
Rack travel in mm : 7.80...8.20

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.50...4.70
Del. quantity cm³/ : 38.0...44.0
1000 s: (36.0...46.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:
Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

APPLICATION Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 9,5 e
 Edition : 30.09.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 834
 Injection pump
 Pump designation : PES6P120A72ORS7154
 EP type number : 0 412 726 811
 Governor
 Governor design. : RQV275...1100PA888K
 Governor no. : 0 421 815 191

Customer-spec. information
 Customer : IVECO-UNIC

Engine : 8460.41.102

1st version kW : 235.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY
 Test pressure, bar : 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

 Rack travel in mm : 11.70...11.80

 Del. quantity cm³/ : 19.8...20.0

 100 s : (19.5...20.3)

 Spread cm³ : 0.5

 100 s : (0.9)

2nd speed rpm : 275.0
 Rack travel in mm : 4.9...5.1
 Del. quantity cm³/ : 1.7...2.3
 100 s : (1.4...2.6)
 Spread cm³ : 0.8
 100 s : (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275
 travel mm : 1.20...1.40
 2nd speed rpm : 450
 travel mm : 3.10...3.90
 3rd speed rpm : 800
 travel mm : 6.30...6.70
 4th speed rpm : 1100
 travel mm : 9.70...9.90
 5th speed rpm : 1200
 travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1125
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 1200

Del. quantity : 198.0...200.0
1000 : (195.0...203.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 53...61

Testing:

1st rack travel in: 10.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:

Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 275
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 280...400

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 850
Rack travel in m: 12.20...12.30
2nd speed rpm : 1100
Rack travel in m: 11.70...11.80
3rd speed rpm : 950
Rack travel in m: 11.90...12.10
4th speed rpm : 750
Rack travel in m: 11.90...12.10
5th speed rpm : 400
Rack travel in m: 11.30...11.50

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 850
Pressure hPa : 1200
Rack travel mm : 12.20...12.30

Measurement

Speed 1/min : 850

1st pressure hPa : -
Rack travel in m: 9.00...9.20

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2nd pressure hPa : 400
Rack travel in m: 10.80...10.90
3rd pressure hPa : 270
Rack travel in m: 9.50...9.70

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 850
Del. quantity cm³/ : 213.0...219.0
1000 s: (210.0...222.0)
Aneroid pressure h: 1200
Speed rpm : 400
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 131.0...133.0
1000 s: (128.0...136.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 110.0...130.0
1000 s: (106.0...134.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.90...5.10
Del. quantity cm³/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,0 a 2
 Edition : 09.09.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 841
 Injection pump
 Pump designation : PES6P120A720LS7114-2
 EP type number : 0 412 726 815
 Governor
 Governor design. : RQ300/1050PA774-3
 Governor no. : 0 421 801 451

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM447 LA

1st version kW : 265.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6,00x1,50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

 Rack travel in mm : 14.00...14.20

 Del. quantity cm³/ : 22.9...23.1

 100 s: (22.6...23.4)

 Spread cm³ : 0.5

 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.8...6.2
 Del. quantity cm³/ : 1.4...2.0
 100 s: (1.1...2.3)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 18.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 1500
 Del. quantity : 229.0...231.0
 1000 : (226.0...234.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 19.5

Testing:

1st rack travel in: 13.00
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0
Speed rpm : 300
Rack travel in mm : 5.80...6.20
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : ?
2nd speed rpm : 1050
Rack travel in m: 14.00...14.20
3rd speed rpm : 700
Rack travel in m: 14.70...14.90

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 14.00...14.10

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.80...12.00
2nd pressure hPa : 500
Rack travel in m: 13.40...13.60
3rd pressure hPa : 1100
Rack travel in m: 14.20...14.40
4th pressure hPa : 1500
Rack travel in m: 14.70...14.90
5th pressure hPa : -
Rack travel in m: 10.40...10.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1050

Del.quantity cm3/ : 234.0...238.0
1000 s: (233.0...241.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 700
Del.quantity cm3/ : 246.0...249.0
1000 s: (243.0...252.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 146.0...148.0
1000 s: (143.0...151.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,0 c
 Edition : 09.09.88
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 776 805

Injection pump
 Pump designation : PES6P120A720LS7155
 EP type number : 0 412 726 812
 Governor
 Governor design. : RSV350.,1050POAS29-1
 Governor no. : 0 421 833 295

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM447 LA

1st version kW : 265,0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.40...13.50

Del. quantity cm³/ : 24.0...24.2

100 s: (23.7...24.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 4.5...4.8

Del. quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1400

Del. quantity : 240.0...242.0

1000 : (237.0...245.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 50...58

Testing:

1st rack travel in: 12.40
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.6
Speed rpm : 350
Rack travel in mm : 4.50...4.80

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.40...13.50
2nd speed rpm : 825
Rack travel in m: 14.10...14.30
3rd speed rpm : 950
Rack travel in m: 13.60...13.80

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 650
Rack travel mm : 13.50...13.70

Measurement

Speed 1/min : 600

1st pressure hPa : 350
Rack travel in m: 11.20...11.40
2nd pressure hPa : 400
Rack travel in m: 11.90...12.10
3rd pressure hPa : 850
Rack travel in m: 13.70...13.90
4th pressure hPa : 1400
Rack travel in m: 14.30...14.50
5th pressure hPa : -
Rack travel in m: 9.80...10.10

FUEL DELIVERY CHARACTERISTICS

1st version

L12

Aneroid pressure h: 650
Speed rpm : 600
Del.quantity cm3/ : 234.0...237.0
1000 s: (231.0...240.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1400
Speed rpm : 825
Del.quantity cm3/ : 263.0...266.0
1000 s: (260.0...269.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 151.0...154.0
1000 s: (148.0...157.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 D 8
Edition : 27.10.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 436 104FA
Injection pump
Pump designation : PES6MW100/12ORS1143
EP type number : 0 413 406 137
Governor
Governor design. : RQV350...1200MW82-1
Governor no. : 0 420 083 153

Cust. part no. : 3916000

Customer-spec. information
Customer : CUMMINS/US

Engine : 6 CTA-830

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0.6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.15...3.25
: (3.10...3.30)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 12.10...12.20

Del. quantity cm³/ : 13.8...14.0

100 s: (13.6...14.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 7.1...7.2

Del. quantity cm³/ : 1.2...1.6

100 s: (1.0...1.8)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250

travel mm : 7.60...7.80

2nd speed rpm : 1350

travel mm : 8.60...9.00

3rd speed rpm : 350

travel mm : 1.20...1.60

4th speed rpm : 800

travel mm : 4.90...5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 700

Del. quantity : 138.0...140.0

1000 : (136.0...142.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 42...50

Testing:

1st rack travel in: 11.10
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1370...1400
4th rack travel in: 1455
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.1

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 7.10...7.20

CONSTANT REGULATION

Speed rpm : 360...500

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 12.10...12.20
2nd speed rpm : 750
Rack travel in m: 12.60...12.70
3rd speed rpm : 1000
Rack travel in m: 12.10...12.20
4th speed rpm : 900
Rack travel in m: 12.20...12.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.70...10.80

Measurement

Speed 1/min : 500

1st pressure hPa : 390
Rack travel in m: 11.00...11.10
2nd pressure hPa : 480
Rack travel in m: 11.60...11.90
3rd pressure hPa : 700
Rack travel in m: 12.60...12.70

START CUT-OUT

Speed 1/min : 270 (280)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 750
Del. quantity cm³/ : 139.0...142.0
1000 s: (136.5...144.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 100.0...102.0
1000 s: (98.0...104.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 205.0...225.0
1000 s: (202.0...228.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.10...7.20
Del. quantity cm³/ : 12.0...16.0
1000 s: (10.0...18.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 D 5
Edition : 24.10.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 436 106

Injection pump
Pump designation : PES6MW100/12ORS1143
EP type number : 0 413 406 137
Governor
Governor design. : RQV350...1100MW78-2
Governor no. : 0 420 083 160

Cust. part no. : 3908567

Customer-spec. information
Customer : CUMMINS/US

Engine : 6 CTA-8.3

1st version kW : 179.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0.6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

L15

Test pressure, bar : 30...32

Prestroke mm : 3.05...3.15
: (3.00...3.20)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Phasing :
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.70...12.80

Del. quantity cm³/ : 15.0...15.2

100 s : (14.8...15.4)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 7.3...7.5
Del. quantity cm³/ : 1.6...2.0
100 s : (1.3...2.2)

Spread cm³ : 0.3
100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1240
travel mm : 8.80...9.20
2nd speed rpm : 1140
travel mm : 7.80...8.00
3rd speed rpm : 700
travel mm : 3.80...4.40
4th speed rpm : 350
travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Aneroid pressure h : 900
Del. quantity : 150.0...152.0
1000 : (148.0...154.0)

Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 44...52

Testing:

1st rack travel in: 11.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1330
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.4

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 7.30...7.50

CONSTANT REGULATION

Speed rpm : 360...550

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.70...12.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.60...9.70
2nd pressure hPa : 230
Rack travel in m: 10.40...10.50
3rd pressure hPa : 490
Rack travel in m: 12.00...12.40

START CUT-OUT

Speed 1/min : 270 (280)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 76.0...78.0
1000 s: (74.0...80.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 205.0...225.0
1000 s: (202.0...228.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.30...7.50
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Start-of-delivery mark/lock = 8.0°
angular displacement of the cam after
start of delivery of cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 D 4
Edition : 30.09.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 436 107
Injection pump
Pump designation : PES6MW100/12ORS1143
EP type number : 0 413 406 137
Governor
Governor design. : RQV350...1100MW82-2
Governor no. : 0 420 083 161

Customer-spec. information
Customer : CUMMINS/US

Engine : 6 CTA

1st version kW : 186.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0.6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.05...3.15
 : (3.00...3.20)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.80...12.90

Del. quantity cm³/ : 15.2...15.4

100 s: (15.0...15.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 7.2...7.4

Del. quantity cm³/ : 1.6...2.0

100 s: (1.4...2.2)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250

travel mm : 9.00...9.40

2nd speed rpm : 1140

travel mm : 7.80...8.00

3rd speed rpm : 700

travel mm : 3.80...4.40

4th speed rpm : 350

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del. quantity : 152.0...154.0

1000 : (150.0...156.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 42...50

Testing:

1st rack travel in: 11.80
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1235...1265
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.3

Testing:

Speed rpm : 100
Minimum rack travel: 8.80
Speed rpm : 350
Rack travel in mm : 7.20...7.40

CONSTANT REGULATION

Speed rpm : 360...500

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 12.80...12.90
2nd speed rpm : 700
Rack travel in m: 13.50...13.60
3rd speed rpm : 900
Rack travel in m: 12.90...13.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.50...9.70

Measurement

Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 10.80...10.90
2nd pressure hPa : 570
Rack travel in m: 12.30...12.60
3rd pressure hPa : 900
Rack travel in m: 13.50...13.60

START CUT-OUT

Speed 1/min : 270 (280)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 700
Del. quantity cm³/ : 160.5...163.5
1000 s: (158.0...166.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 77.0...79.0
1000 s: (75.0...81.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 205.0...225.0
1000 s: (202.0...228.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.20...7.40
Del. quantity cm³/ : 16.0...20.0
1000 s: (14.0...22.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Start-of-delivery mark/lock = 8.0°
angular displacement of the cam after
start of delivery of cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 17
 Edition : 30.09.88
 Replaces : 13.06.88
 Test oil : ISO-4113

Combination no. : 0 403 446 150

Injection pump
 Pump designation : PES6MW100/72ORS1120
 EP type number : 0 413 406 112
 Governor
 Governor design. : RGV300...1300MW59
 Governor no. : 0 420 083 077

Customer-spec. information
 Customer : DB

Engine : OM366LA

1st version kW : 141.7
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

L19

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.10...12.20

Del. quantity cm³/ : 8.6...8.8

100 s : (8.4...9.0)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.1...6.2

Del. quantity cm³/ : 0.9...1.3

100 s : (0.7...1.5)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.50...9.90

2nd speed rpm : 1350

travel mm : 8.50...8.70

3rd speed rpm : 450

travel mm : 2.40...3.00

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del. quantity : 86.0...88.0

1000 : (84.0...90.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:
1st rack travel in: 11.10
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1450...1480
4th rack travel in: 1530
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.10...6.20

CONSTANT REGULATION
Speed rpm : 320...550

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 310
Rack travel mm : 11.80...11.90

Measurement
Speed 1/min : 500

1st pressure hPa : 700
Rack travel in m: 12.10...12.20
2nd pressure hPa : -
Rack travel in m: 11.00...11.10
3rd pressure hPa : 280
Rack travel in m: 11.20...11.50

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 750
Del. quantity cm³/ : 75.5...78.5
1000 s: (73.0...81.0)

Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 47.0...49.0
1000 s: (45.0...51.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.10...6.20
Del. quantity cm³/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
:

L20

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 47
 Edition : 30.09.88
 Replaces : 13.06.88
 Test oil : ISO-4113
 Combination no. : 0 403 446 156
 Injection pump
 Pump designation : PES6MW100/72ORS1120
 EP type number : 0 413 406 112
 Governor
 Governor design. : RQV300...1300MW59
 Governor no. : 0 420 083 077

Customer-spec. information
 Customer : DB

Engine : 0M366LA

1st version kW : 141.7
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.10...12.20

Del. quantity cm³/ : 8.6...8.8

100 s : (8.4...9.0)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.1

Del. quantity cm³/ : 0.9...1.3

100 s : (0.7...1.5)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.50...9.90

2nd speed rpm : 1350

travel mm : 8.50...8.70

3rd speed rpm : 450

travel mm : 2.40...3.00

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del. quantity : 86.0...88.0

1000 : (84.0...90.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:
1st rack travel in: 11.10
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1440...1470
4th rack travel in: 1530
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.00...6.10

CONSTANT REGULATION
Speed rpm : 320...550

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 310
Rack travel mm : 11.80...11.90

Measurement
Speed 1/min : 500

1st pressure hPa : 700
Rack travel in m: 12.10...12.20
2nd pressure hPa : -
Rack travel in m: 11.00...11.10
3rd pressure hPa : 280
Rack travel in m: 11.20...11.50

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 75.5...78.5
1000 s: (73.0...81.0)

Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 47.0...49.0
1000 s: (45.0...51.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.10
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.00...6.10
Del.quantity cm³/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 9
 Edition : 24.10.88
 Replaces : 16.05.88
 Test oil : ISO-4113

Combination no. : 0 403 446 158

Injection pump
 Pump designation : PES6MW100/72ORS1131
 EP type number : 0 413 406 123
 Governor
 Governor design. : RQV300...1300MW50-1
 Governor no. : 0 420 083 089

Customer-spec. information
 Customer : DB

Engine : OM 366 LA

1st version kW : 150.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3,70...3,80
 : (3,65...3,85)

Rack travel in mm : 9,00...12,00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.20...12.30

Del. quantity cm³/ : 9.6...9.8

100 s: (9.4...10.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.1...6.2

Del. quantity cm³/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.40...10.20

2nd speed rpm : 1350

travel mm : 8.50...8.70

3rd speed rpm : 450

travel mm : 2.60...2.80

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del. quantity : 96.5...98.5

1000 : (94.5...100.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:
1st rack travel in: 11.20
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1440...1470
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 12...20
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack travel: 7.60
Speed rpm : 300
Rack travel in mm : 6.10...6.20

CONSTANT REGULATION
Speed rpm : 350...550

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.50...10.60

Measurement
Speed 1/min : 500

1st pressure hPa : 170
Rack travel in m: 10.90...11.00
2nd pressure hPa : 225
Rack travel in m: 11.80...12.10
3rd pressure hPa : 700
Rack travel in m: 12.20...12.30

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 575
Del. quantity cm³/ : 82.0...85.0
1000 s: (79.5...87.5)

Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 50.5...52.5
1000 s: (48.5...54.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.10...6.20
Del. quantity cm³/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 11
 Edition : 08.06.88
 Replaces : 11.85
 Test oil : ISO-4113
 Combination no. : 0 403 446 168
 Injection pump
 Pump designation : PES6MW100/72ORS1131
 EP type number : 0 413 406 123
 Governor
 Governor design. : RQV300...1300MW67
 Governor no. : 0 420 083 099

Customer-spec. information
 Customer : DB

Engine : OM 366 LA

1st version kW : 150.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.90...12.00

Del. quantity cm³/ : 9.6...9.8

100 s : (9.4...10.0)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.1...6.2

Del. quantity cm³/ : 0.9...1.3

100 s : (0.7...1.5)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1425
 travel mm : 9.30...9.70

2nd speed rpm : 1350
 travel mm : 8.50...8.70

3rd speed rpm : 500
 travel mm : 2.70...3.30

4th speed rpm : 300
 travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h : 700

Del. quantity : 96.0...98.0

1000 : (94.0...100.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 59...67

Testing:
1st rack travel in: 10.90
Speed rpm : 1345...1355
2nd rack travel in: 4.00
Speed rpm : 1440...1470
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack travel: 7.60
Speed rpm : 300
Rack travel in mm : 6.10...6.20

CONSTANT REGULATION
Speed rpm : 350...550

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 370
Rack travel mm : 10.50...10.60

Measurement
Speed 1/min : 500

1st pressure hPa : 700
Rack travel in m: 11.90...12.00
2nd pressure hPa : -
Rack travel in m: 10.00...10.10
3rd pressure hPa : 470
Rack travel in m: 11.40...11.70

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 600
Del. quantity cm³/ : 80.0...84.0
1000 s: (78.0...86.0)

Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 48.0...50.0
1000 s: (46.0...52.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1345...1355

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 88.0...98.0
1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.10...6.20
Del. quantity cm³/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

At 1300 1/min and 700 hPa charge-air pressure, adjust reduced-delivery lever to 11.5...11.6 mm control-rod travel.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 25
 Edition : 30.09.88
 Replaces : 30.05.88
 Test oil : ISO-4113

Combination no. : 0 403 446 170

Injection pump
 Pump designation : PES6MW100/72ORS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RQV300...1300MW69
 Governor no. : 0 420 083 102

Customer-spec. information
 Customer : DB

Engine : 0M366A

1st version kW : 125.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 7.7...7.9

100 s : (7.5...8.1)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...7.9

Del. quantity cm³/ : 0.9...1.3

100 s : (0.7...1.5)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.00...9.40

2nd speed rpm : 1350

travel mm : 8.10...8.30

3rd speed rpm : 650

travel mm : 4.70...5.30

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del. quantity : 77.0...79.0

1000 : (75.0...81.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 50...58

Testing:
1st rack travel in: 10.00
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1425...1455
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.8

Testing:
Speed rpm : 100
Minimum rack travel: 10.20
Speed rpm : 300
Rack travel in mm : 7.80...7.90

CONSTANT REGULATION
Speed rpm : 330...500

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 11.00...11.10
2nd speed rpm : 750
Rack travel in m: 11.90...12.00
3rd speed rpm : 700
Rack travel in m: 12.00...12.20
4th speed rpm : 1100
Rack travel in m: 11.20...11.50

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del. quantity cm³/ : 70.5...73.5
1000 s: (68.0...76.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.00
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...7.90
Del. quantity cm³/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 N
 Edition : 13.06.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 189
 Injection pump
 Pump designation : PES6MW100/32ORS1147
 EP type number : 0 413 406 142
 Governor
 Governor design. : RQV275...1250MW80
 Governor no. : 0 420 083 128

Customer-spec. information
 Customer : RVI

Engine : MIDR 060226

1st version kW : 133.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00

MD1

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.70...10.80

Del. quantity cm³/ : 9.6...9.8
 100 s: (9.4...10.0)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 275.0
 Rack travel in mm : 7.20...7.30
 Del. quantity cm³/ : 1.0...1.4
 100 s: (0.8...1.6)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1475
 travel mm : 9.20...9.60
 2nd speed rpm : 1300
 travel mm : 7.80...8.00
 3rd speed rpm : 500
 travel mm : 3.00...3.60
 4th speed rpm : 275
 travel mm : 1.00...1.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Aneroid pressure h: 750
 Del. quantity : 96.0...98.0
 1000 : (94.0...100.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 45...53

Testing:
 1st rack travel in: 9.70

Speed rpm : 1315...1325
2nd rack travel in: 4.00
Speed rpm : 1420...1450
4th rack travel in: 1600
Speed rpm : 0.60...1.60

LOW IDLE 1

Control lever
position degrees: 12...20
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 3.4

Testing:

Speed rpm : 200
Minimum rack travel: 8.90
Speed rpm : 275
Rack travel in mm : 7.20...7.30

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.10...9.20

Measurement

Speed 1/min : 500

1st pressure hPa : 220
Rack travel in m: 9.80...9.90
2nd pressure hPa : 295
Rack travel in m: 10.00...10.30
3rd pressure hPa : 750
Rack travel in m: 10.70...10.80

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750
Speed rpm : 800
Del. quantity cm³/ : 92.5...96.5
1000 s: (90.5...98.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 58.0...60.0
1000 s: (56.0...62.0)

BREAKAWAY

MO2

1st version
1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1315...1325

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 100.0...120.0
1000 s: (97.0...123.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275
Rack travel in mm : 7.20...7.30
Del. quantity cm³/ : 10.0...14.0
1000 s: (8.0...16.0)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:
Set start-of-delivery sensor at pre-stroke to 3.50...3.60 mm for cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 Q
Edition : 30.09.88
Replaces : 16.06.88
Test oil : ISO-4113

Combination no. : 0 403 446 190

Injection pump
Pump designation : PES6MW100/32ORS1154
EP type number : 0 413 406 144
Governor
Governor design. : RQV275...1250MW80
Governor no. : 0 420 083 128

Customer-spec. information
Customer : RVI

Engine : MIDR 060226

1st version kW : 128.7
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 033

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 16.50...19.50

M03

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.90...13.00

Del. quantity cm³/ : 9.9...10.1

100 s : (9.7...10.3)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 275.0

Rack travel in mm : 5.50...5.70

Del. quantity cm³/ : 1.8...2.2

100 s : (1.5...2.2)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1475

travel mm : 9.20...9.60

2nd speed rpm : 1300

travel mm : 7.80...8.00

3rd speed rpm : 500

travel mm : 3.00...3.60

4th speed rpm : 275

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1300

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 800

Del. quantity : 99.5...101.5

1000 : (97.5...103.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED